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FEBRUARY 10TH, 1885.

FRANCIS GALTON, Esq., M.A., F.R.S., *President, in the Chuir.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

- From FRANCIS GALTON, Esq., M.A., F.R.S.—*Erhebungen ueber die Farbe der Augen, der Haare und der Haut bei den Schulkindern Oesterreichs.* By Gustav Adolf Schimmer.
- From Professor FLOWER, LL.D., F.R.S.—*Amerika's Nordwest-Küste neueste Ergebnisse Ethnologischer Reisen.*
- *A Vocabulary of the Murray River Language.* By M. Moorhouse.
- *The Dieyerie Tribe of Australian Aborigines.* By Samuel Gason.
- From the AUTHOR.—*On the Delineation of Skulls by Composite-Photography.* By Arthur Thomson, M.B.
- *Grammaire Élémentaire de la Langue Quiché.* By A. Blomme.
- *List of Birds from Java.* By A. G. Vorderman.
- *Catalogue of Natural History Objects, Ethnological Specimens and Curiosities, exhibited by Lady Brassey at Hastings, 1884-5.* By M. Bryce-Wright.

- From the AUTHOR.**—Description of the Collection of Gold Ornaments from the "Huacas" or Graves of some Aboriginal Races of the North-West Provinces of South America belonging to Lady Brassey. By M. Bryce-Wright.
- Descriptive Sketch of the Physical Geography and Geology of the Dominion of Canada. By A. R. C. Selwyn, LL.D., and G. M. Dawson, D.Sc.
- Comparative Vocabularies of the Indian Tribes of British Columbia. By W. Fraser Tolmie and George M. Dawson, D.Sc.
- From the ACADEMY OF SCIENCE, KRACOW.**—Rozprawy i Sprawozdania z Posiedzen wydzialu Matematyczno-Przyrodniczego Akademii Umiejetnosci. Tom. XI.
- Zbiór Wiadomosci do Antropologii Krajowej. Tom. VIII.
- Lud. Serya XVI, XVII.
- From the GERMAN ANTHROPOLOGICAL SOCIETY.**—Correspondenz-Blatt. 1884. Nos. 11, 12.
- From the IMPERIAL ACADEMY OF SCIENCES OF VIENNA.**—

Sitzungsberichte: Philos-Histor. Classe, Band 104		Heft 1, 2.
		" 105 " 1, 2, 3.
		" 106 " 1, 2.
" { Math.-Naturw. " { Classe	I Abthlg.	1883. Nos. 6, 7, 8-10.
	II "	1884. " 1, 3, 4, 5.
	II "	1883. " 6, 7, 8-10.
	III "	1884. " 1, 2, 3, 4, 5.
	III "	1883. " 4, 5, 6, 7, 8-10.
		" 1884. " 1, 2.

— Almanach, 1884.

From the ANTHROPOLOGICAL SOCIETY OF BERLIN.—Zeitschrift für Ethnologie, 1884. Heft 5.

From the ACADEMY.—Bulletin de l'Académie Impériale des Sciences de St. Pétersbourg. Tom. XXIX.

— Atti della Reale Accademia dei Lincei. Serie 4, Vol. I, Fas. 1-3.

— Boletín de la Academia Nacional de Ciencias en Córdoba. Tom. VI, Ent. 4, Tom. VII, Ent. 1.

From the ASSOCIATION.—Journal of the East India Association. Vol. XVII, No. 1.

— Journal and Proceedings of the Hamilton Association. Vol. I, Part 1.

From the SOCIETY.—Transactions of the Imperial Society of Friends for Research in Natural Science; Anthropology and Ethnography, Moscow. Vol. XLV, Parts 1-3.

— Proceedings of the Royal Society. No. 234.

— Journal of the Society of Arts. Nos. 1678-1681.

— Bulletin de la Société des Sciences Naturelles de Neuchâtel. Tom. XIV.

— Journal of the Royal Asiatic Society. Vol. XVII, Part 1.

H. H. JOHNSTON.—*The People of Eastern Equatorial Africa.* 3

From the SOCIETY.—Proceedings of the Royal Geographical Society.
February, 1885.

From the EDITOR.—*Bullettino di Paletnologia Italiana.* 1884,
Nos. 7-10.

— *Materiaux pour l'Histoire de l'Homme.* 1884, December.

— *Revue d'Anthropologie.* 1885. No. 1.

— "Nature." Nos. 794-797.

— *Science.* Nos. 100, 102, 103.

— *Journal des Sociétés Scientifiques.* No. 2.

— *Revue Scientifique.* Tom. XXXV, Nos. 3-6.

— *Revue Politique.* Tom. XXXV, Nos. 3-6.

The election of DOUGLAS W. FRESHFIELD, Esq., Lieut.-Colonel
J. A. GRANT, C.B., F.R.S., and CUTHBERT EDWARD PEEK, Esq.,
M.A., was announced.

The following paper was read by the author:—

THE PEOPLE OF EASTERN EQUATORIAL AFRICA.

By H. H. JOHNSTON, Esq.

THE races which I intend to describe in the present paper extend over a region of Eastern Africa lying between the 1st degree north of the Equator and 5 degrees to the south, and bounded on the west by the 34th degree of east longitude and on the east by the Indian Ocean. I wish for the sake of comparison to enumerate all the known races inhabiting this wide stretch of country, but I shall more especially describe those dwelling in the vicinity of Kilimanjaro, the great snow-clad mountain mass, where I have recently been residing for six months.

The country which lies between the Victoria Nyanza and the coast, and is circumscribed by the limits I have just cited, offers many peculiarities of conformation worthy of remark inasmuch as they doubtless influence the races of men inhabiting those regions. Beyond the fertile cultivated coast-belt, which is rarely more than ten miles broad, begins the Nyika, a strange "wilderness," as its name imports, covered with harsh repellant vegetation and almost unprovided with running water. Here the rainfall is scanty, and the country bears a parched look all the year round. This semi-desert, except where it is broken by mountainous districts or intersected by great rivers, extends uninterruptedly to within a short distance of the eastern shores of the Victoria Nyanza, and is indeed the prevailing type of scenery throughout

Africa, for the Dark Continent is on the whole less forested than any other part of the tropics. But as a happy contrast to this dreary "veldt," as it is called in the south, rise the magnificent mountain systems of Usambara, Taïta, Pare, Uguéno, Kilimanjaro, Kiulu; not to mention other mighty ranges which Thomson has made known to us, and which offer from his description the same characteristics as those I have myself explored. Another break in the Nyika is made by the courses of perennial rivers flowing to the Indian Ocean, such as the Ruvu, or Luvu, the Tzavo or Sabaki, the Tana, and a few minor streams of less importance. The marked distinction between the outward aspects of the well-watered forest country on the banks of rivers or amid high mountains, and the great rolling plains sparsely covered with stunted trees or thorny scrub which I call the Nyika, is carried out further in the races of man inhabiting either. The forest country on the hills or along the rivers is occupied by resident agriculturists almost exclusively belonging to the Bantu family, ethnologically and linguistically, and the forbidding wilderness in the plains is ranged over by tribes of either Galla or Masai origin, both of which may be roughly classed with the Ethiopic or Hamitic group. In the extreme north-east the recent excursions of the Somal tribes have brought them into contact with the Gallas, to whom, indeed, they seem to be closely allied in origin. Besides the two important divisions of Africans already alluded to, viz., the Bantu and the Ethiopic, other natural families are represented. There is a curious colony of Nilotic negroes settled on the eastern bank of the Victoria Nyanza, who in their language, at any rate, are allied to the Shilluks and other negroes of the Nile. Ancient Arab settlements on the coast represent the Semitic family in this congeries of peoples, while much yet remains to be ascertained about the relationships and affinities of the reported dwarf races lying between Kilimanjaro and the Nyanza and the curious helot tribes known as the Wa-boni, Wa-sanja, Wa-ta, Wa-ndurobo, and others whose very designation is foreign, as you may observe by the Swahili prefix "Wa" which precedes them.

I shall not say anything about these dwarfs and helot races to-night, as I have had few or no opportunities of examining them; but I would remark that some of the tribes of Wa-ndurobo or A-ndurobo, whom I have seen living with the Masai as a helot race of hunters and smiths, seemed to me from their physiognomy negroes of a low type, and very different in outward aspect from both the Masai and Bantu people around them, especially in the conformation of the lower limbs, which were relatively short and somewhat bowed, with a negro's shin.

As to the Nilotic negroes of Kavirondo there is little doubt that they inhabit the eastern bank of the Victoria Nyanza. From the specimens of their language received through Swahili traders and communicated to the missionaries on the coast we see that they are, philologically at any rate, distinctly related with Shillucks of the White Nile, and must represent a curious and isolated colony of negro stock, the remnant of some former invasion now surrounded on all sides by tribes of alien origin. They are only known as yet from the descriptions of Swahili traders, and no European has visited their country save in the hasty coasting trip along their coasts which Stanley made when circumnavigating the Victoria Nyanza. Thomson in reality missed Kavirondo altogether, and really reached the country of U- or Bu-nyara to the north; for he tells us the people of this district, which he calls "Upper Kavirondo," were Bantu in origin and language, and differed wholly from the people of Kavirondo proper to the south.

I will now proceed to consider the people of Bantu race which are known to inhabit this part of Africa.

From somewhere to the south of the Island of Lamu, in about 2° S. latitude, down to Algoa Bay in Cape Colony, the east coast of Africa is held by the Bantu race, mingled slightly here and there with the blood of Arabs or Portuguese, where these nations have been in long possession as rulers. From Lamu down to the coast opposite Zanzibar the tongue chiefly spoken is Ki-swahili, but there are also local dialects, such as Ki-nika, peculiar to the inhabitants of the district round Mombasa, and Ki-bondei, the language of the low country between Usambara and the sea. On the great Dana river, which flows through Southern Gallaland and takes its rise about the southern slopes of Mount Kenia, we have the interesting Wa-pokomo dwelling just along the river banks and surrounded north and south by Gallas. Fragments of Bantu people are also reported to the east and north of Kenia, and to the south of that mountain we have the district of the Wa-Kikuyu, who, according to Thomson, speak a dialect closely related to that of their neighbours to the east, the A-kamba, which latter tribe extends southwards to the borders of Taita. The clump of mountains known as Taita is separated by about forty miles of uninhabited plain from the lovely country of Usambara, which again is inhabited by Bantu people of several tribes, the Wa-sambara being only one but the dominating race, and the Wa-mbugu seeming to belong to a more truly indigenous stock. North-west of these, in the valley of the Ruvu, are colonies of the Wa-zegūa; then comes the mountain range of Pare, inhabited by the kindly Wa-pare; then the hill-tribes of Ugueno, the Wa-kahe in the plains of the upper Ruvu, the

interesting colony of Taveita on the river Lumi, to the south-east of Kilimanjaro, the populous states of Chaga round the southern and eastern flanks of this mighty snow-crowned volcano, and lastly a small colony of the same race inhabiting Mount Méru to the west.

Hitherto, I am conscious that my paper has been a bare record of names, and that you know nothing of the people, how they live, how they feel, or anything beyond their merely geographical existence. I will therefore endeavour to describe them somewhat in detail, especially those with whom I have come into personal contact during my expedition to Kilimanjaro.

After leaving Rabai, near Mombasa, we encountered no inhabitants until we reached the hills of Maungu, on the borders of Taïta. Here some people came and sold us honey and spoke to us in the Ki-taïta dialect. At Ndara and Bura we subsequently saw more of the Wa-taïta, and many of them afterwards emigrated to Taveita and Chaga, and even entered my service as hunters and scouts, so that I was enabled to see a good deal of them from first to last, and take down vocabularies of their dialect.

In outward appearance the Wa-taïta are unprepossessing. They are about the medium height, the men varying generally from 5 feet 2 inches to 5 feet 7 inches, and the women from 4 feet 11 inches to 5 feet 3 inches. They have fairly good figures, the limbs, especially the legs, are well formed but the men are somewhat effeminate and slight looking. In facial aspect there is much variation. While many have little pug noses with no perceptible bridge, and a much rounded, projecting forehead, others exhibit an almost Red Indian physiognomy, with aquiline noses, high cheekbones, and retreating foreheads. The teeth are artificially filed and sharp pointed, but are naturally set somewhat wide apart in the jaw. The whites of the eyes are much clouded. The ears are so tortured and misshapen by prevailing fashion that it is hard to guess their original shape. The body is disposed to be hairy, but is carefully depilated all over, even to the plucking out of eyebrows, eyelashes, beard and moustache. The colour of the skin is generally dull, sooty black, but this is often disguised by the coating of soot or red earth and fat or castor oil, which is rubbed over the skin. The hair is generally shaved all round the head and only allowed to grow on the occiput. Here it is much cultivated and pulled out into long strings, which are stiffened with grease and threaded with beads. Beads, indeed, are the adoration of the Wa-taïta. The women wear massive collars of them, sometimes 6 inches broad and 3 inches deep, which are placed round the neck, and sometimes so lift up the chin as to compel the wearer to keep the head well thrown back. Several hundred strings of beads are bound round the waist,

smaller bands cross and recross the back and breasts, they are banded round the shaven part of the head, they hang in scattered strings from the temple downwards, they decorate the tiny "tablier," or leather apron which is worn for purposes of decency, and the borders of the two-tailed leathern garment which hangs on the back and legs are also edged with beads of various colours. In both sexes the lobes of the ears are pierced, and the hole is widened until the distended flap of skin nearly reaches the shoulder. When this result has been attained, many rings of beads are inserted, and continue to weigh down the distorted ear, the outer auricle of which is further pierced and hung with beads of a larger kind. This hanging the ears with beads is peculiar to the Wa-taïta, the other mountain races in the vicinity employing for the like purpose fine iron chains, bolts of wood, or rings of wood or ivory. There are but slight traces of religion among them. They are afraid of spirits, who are supposed to dwell in large forest trees, and perhaps for the reason that their dead are always buried in the forest. The country is but slightly wooded, but on the hill-tops clumps of high trees are religiously conserved. The baobabs among these people, as among others East African races, are looked upon as particularly the abode of spirits. The word for God in their language is *Mulungu*, but I more than suspect it is a borrowed term from the coast tribes, and that "*Eruwa*," *Sun*, is their true conception of an overruling deity. Among the Wa-pare, the Wa-gweno, the Wa-taveita, and the Wa-chaga the word for "sun" and "God" is identical. *Mulungu* is in use among the A-nika, and the A-kamba, and *Mwūngu* and *Mungo* among the Wa-swahili and the Wa-pokomo. All these variants descend from an original form, "*Mu-n-kulu-nkulu*," which is most closely preserved in the modern Zulu "*U-nkulunkulu*." The adjective "*-kulu*" in nearly all Bantu tongues has the meaning of great or old. To this was added the "*n*" prefix, then the personal prefix "*mu*," so that finally the combination meant the "old, old one," for great and old in this sense are almost synonymous, and Bleek conjectures the term to have been a relic of ancestor worship, or the deification of some tribe-founder.

One other incident may be mentioned about the Wa-taïta before I leave them. Their marriages are arranged first by purchase, the intending husband paying the father of the girl the three or more cows fixed as the price. When these preliminaries are settled the girl runs away and affects to hide. She is sought out by the bridegroom and three or four of his friends. When she is found, the men seize her and carry her off to the hut of her future husband, generally each man holding a limb, so that she is supported by four men including the bridegroom. On arriving

at their destination, being accompanied on the way by bands of laughing girls and women, she enters the hut with her four captors, and each in turn enjoys her. Then having been in this strange manner repaid for their services, they leave her to the exclusive possession of her husband. She remains with him for three days, then is escorted back to her father's house by another procession, and finally returns to her future home to take up the cares and duties of domestic life.

The language of the Wa-taita is about intermediate between the dialects of the coast and those of Chaga.

The A-kamba, who live on a broad stretch of country to the north of Taita nearly to the base of Kenia, are the neighbours of the Gallas on the coast. They are very roving, colonising people, and great hunters. I have seen many of them at Taveita, whither they would bring rhinoceros horns and dried rhinoceros flesh for sale. These are on the whole a good-looking race, and I was surprised to find in many that the hair, though short, is straight, which together with a light skin shows an intermixture of Galla blood. They are slightly clothed in leathern coverings with a certain regard for decency.

The beautiful forest district of Taveita is inhabited by two different colonies. One a Kwavi people of Masai origin, and the other and more primitive a most interesting Bantu tribe, the Wa-taveita, who exhibit marked peculiarities in their language and ideas. Let me begin by saying that they are one of the pleasantest people I have ever encountered in Africa. They are of fair height, some of the men being both tall and robust, and attaining occasionally 6 feet in height. Their figures are often models of symmetry and grace. They anoint the body with oil and ochre, as do the neighbouring people already described. The hair is dressed in many fashions, more often divided with fat into separate strips and the whole united in a pigtail at the back, or else allowed to hang in long locks about the face and shoulders. They frequently let the beard and moustache grow, and generally abstain from plucking out eyelashes and eyebrows, as is done elsewhere, though this is also occasionally practised at Taveita. Circumcision is general. Marriage is of course a matter of purchase, but no sign of imitating capture seems to be practised here. If the young man cannot afford to pay for his wife at once, he gives over to the father a certain portion of the price, and his intended bride is betrothed to him and carefully prevented from communicating with other males until the rest of the purchase is paid. Then she becomes a wife, and directly signs of pregnancy are manifest she is dressed with much display of beads, and over her eyes a deep fringe of tiny iron chains is hung, which hides her and also prevents her from seeing clearly.

She is generally accompanied by an old woman, who is deputed to screen her from all excitement and danger until the expected event has taken place; after which little further fuss is made, and other succeeding children are born without any extra precautions being taken.

After marriage the greatest laxity of manners is allowed among the women, who often court their lovers under the husband's gaze; provided the lover pays, no objection is raised to his addresses. Both sexes have little notion or conception of decency, the men especially seeming to be unconscious of any impropriety in exposing themselves. What clothing they have is worn either as an adornment or for warmth at night and early morning. These people are affectionate and kindly in their family relations, and to give you a better glimpse of how they live and feel I will cull the following extract from my diary, which describes the visit paid to a native's compound in Taveita:—

"Early this morning many friends came with offerings of milk, fowls, bananas, &c. One man wanted me to come to see him at his home, so I went thither with my servant. Round his little compound was a kind of fence formed of the long midribs of the Mwale¹ palms laid lengthways. There were three houses inside: one for the women, one for the goats and sheep, and one for the man. His dwelling, though small, was far from uncomfortable, and the interior was remarkable for the neatness that characterises the domestic arrangements of most Africans. There was a raised dais for the bed, on which skins were laid; a little three-cornered stool to sit on; a fire burning in the centre of the floor; spears, knives, horns of animals, and many other articles ranged to dry round the walls. At the man's earnest request we partook of sour milk and sugar-cane. He also wished us to try some rather dirty half-fried fish, but this I was obliged to decline. Whilst I sat talking to him, his wife, a motherly-looking soul, appeared leading a small, rather unhealthy child, and was further followed by a genial old hag, my friend's mother. This latter was a merry social old body, though very monkey-like as she sat and chewed sugar-cane, holding it before her with both hands and gnawing it laterally with her teeth, while the further end of the cane was clutched between her lean thighs. My host caught his child to him with unmistakable parental affection. He carefully pinched and pressed the great protruded stomach, as if divining this to be an unhealthy symptom. Seeing he was anxious, and wishing to say something kind, I offered to send medicine, which in the Swahili tongue is

¹ A species of *Raphia*.

expressed by an Arab word 'Dawa.' But he only replied, 'Dawa, what do we know of Dawa?' Then he looked up to the sky in quite a simple way and said, 'Perhaps Muungu will cure him? who knows?—the other one died.' 'Then you had another child?' I asked. 'Yes,' he said, 'but Muungu took it.' He looked again at his child, and seeing its eyes were flecked with mucus he cleaned them with great sucking kisses. At length I rose and said in a roundabout way I had better be going. He put the child from him with a sigh and rose and followed me to my camp, carrying a present of bananas."

The people of Taveita subsist mainly on vegetable food, of which they rear a great variety in their beautiful gardens. They also eat fish and meat. The fish are caught in the river Lumi, which runs through the settlement, by means of skilfully made wicker-work traps and weirs. They also construct from the midribs of a *Raphia* palm most clever rods and lines, the whole material coming from the palm, with a native-made iron hook superadded.

The Wa-taveita proper number about two thousand. They bear an excellent reputation among the coast traders for honesty and friendliness. They speak Ki-swahili almost universally, and speak it with singular correctness; but of course among themselves Ki-taveita is the only language used. This very interesting Bantu dialect offers many curious features and retains a number of archaic words in its vocabulary. It is somewhat midway between Ki-kamba and Ki-chaga, but offers independent features of its own. So much intercourse with traders from the coast seems to have slightly robbed them of originality, and in their modes of life and forms of belief they somewhat ape the Wa-swahili. Many of them are almost Mohammedans. I noticed one little detail as regards fire-making which is worth recording. To produce fire, which is done in the common African way by rapidly drilling a hard pointed stick into a small hole in a flat piece of wood, is the exclusive privilege of the men, and the secret is handed down from father to son, and never, under any conditions—so they say—revealed to women. I asked one man why that was. "Oh," he said, "if women knew how to make fire they would become our masters." Nevertheless, without this drawback, the fair sex in Taveita have pretty much their own way. I have known one or two leading matrons who have always insisted on having their voice in the deliberations of the Wazēē, or elders, who govern Taveita. I have referred to their laxity of conduct after marriage, but it springs so much from amiability of disposition that it can hardly be called vice. In short, a more kindly, sensible, considerate set of beings I have never met than the Wa-taveita.

The Wa-chaga of Kilimanjaro do not altogether resemble them. They are neither so pleasing in appearance nor in disposition. Sometimes they attain a fine stature, as in the case of Mandara, the chief of Moshi, but generally they are short men. The women, however, are at times very good-looking, and have wonderfully fine figures. In fact, the ordinary rule amongst Africans is here reversed, and the women are handsomer than the men. Amongst these people we again meet signs of marriage by capture, but in their case it does not seem to be as I have described in the Wa-taïta, for the bridegroom is quite equal single-handed to the capture of his wife, and certainly not disposed to reward his friends in the same manner as the less exclusive Wa-taïta husband. On several occasions when I observed a marriage ceremony during my residence in Chaga, the intending husband went to his future wife's home, seized her in his arms and carried her off pig-a-back to his own residence, she screaming lustily and crowds of laughing friends following behind. On arriving at the husband's hut the marriage is generally consummated in public, and should the woman be found a virgin there are loud cries of rejoicing. Should the husband, however, fail to satisfy himself as to this point there are mutual recriminations, often ending in a loud-voiced wrangle, and sometimes the woman is returned to her father, who repays the marriage price. More often the matter is arranged by mutual concessions. The Wa-chaga are not markedly immoral; in fact, as they have come but very little into contact with Mohammedans they may be said to ignore real vice; but they are nevertheless the most utterly shameless people I have ever encountered. With them indecency does not exist, for they make no effort to be decent, but walk about as Nature made them, except when it is chilly, or if they wish to look unusually smart, in which cases they throw cloth or skins around their shoulders. Circumcision, if performed on the male, which it is not universally, is generally done after the age of puberty.

The Wa-chaga share with the Masai, whom they may have copied, a curious habit of *spitting* on things or people as a compliment or sign of gratitude. I remember one man, after I returned to my settlement in Chaga from a short trip to Taveita, was so pleased at my safe return that he took my hand in his and spat repeatedly at the sky, saying constantly "Erua icha!"—"God is good!" They have but a vague idea of the deity. Indeed one never knows whether or not he is identical with the sun, for that luminary bears just the same name, "Erua." It is interesting to notice, in contradistinction to the derivation of the name of God I recently gave as coming from ancestor worship, that among other African nations the deity is identified with the

sky or the sun. Thus there is the term "Erua" already referred to, which indicates "God" in Ki-chaga. Among the Ki-taveita it is "Zuwa," also "Sun," although the Swahili have lately introduced their word, Muungu. The form "Erua," "Zuwa," is identical in origin with the Swahili "Jua," the Luganda "Njuba," the Congo "Ntuva," all meaning sun, and all remounting to an archaic form "Nduba." On the upper Congo the Ba-yanzi have but one word for God and Sky—"Ikuru," or "Likulu."¹ Even among the Gallas "Waka" means indifferently God and Sky, and in the Masai language "Engai" (a feminine word) means both God, Sky, and Rain.

However, to return to the subject of the Wa-chaga. Though having little religious belief, they are very superstitious, and have great dread of sorcery. Large trees are supposed to be much affected by ghosts, and for this reason are spared by the axe. Their dead are buried in these isolated forests, sometimes in hollow trees, sometimes in the ground. Hyænas generally dig them up and eat them—this being little cared for by the survivors.

The Wa-chaga are clever smiths, and forge all kinds of utensils, weapons, and ornaments from the pig-iron they receive from the country of Usanga near Lake Jipe. The forge is but a pair of goat-skin bellows converging into a hollow cone of wood, to which are added two more segments of stone pierced through the centre and ending in a stone nozzle which is thrust into the furnace of charcoal. The bellows are kept steady by several pegs thrust into the ground, and a huge stone is often placed on the pipe to keep it firm. After the iron has been heated white hot in the charcoal it is taken out by the iron pincers and beaten on a stone anvil. The Chaga smiths not only make spear blades and knives of apparently tempered steel, but they can fabricate the finest and most delicate chains. Out of a rhinoceros horn they will make a beautifully turned and polished club, carved by hand, for they have no turning lathe. Pottery is almost absent. Basket-work is carried to great perfection, and they can weave it so tightly that milk may be held in these utensils of woven grass or banana-fibre. The wooden platters that are here before you to-night show no little skill in shaping, as they are cut out of solid blocks of wood, and not joined in any way.

But it is in their husbandry that the Wa-chaga mostly excel. The wonderful skill with which they irrigate their terraced hill-sides by tiny tunnels of water diverted from the main stream shows a considerable advancement in agriculture. Their time is constantly spent in tilling the soil, manuring it with

¹ The stem, *Kuru*, *Kulu*, however, is identical with the universal Bantu word for "great."

ashes, raking it, and hoeing it with wooden hoes. All their agricultural implements, except the choppers, adzes, and sickles, are of wood—wooden hoes, wooden stakes, and so on. They have a very clever mode of irrigating equally a given surface. As the little canals of water are always elevated above the cultivated plots, they will tap it at a convenient spot above the bed to be watered, and then turn the stream into a rough conduit made of the hollow stems of bananas cut in half, the end of each stem overlapping the next. Then as the water enters the last joint it is freely turned right and left, dispersing the vivifying stream in all directions.

The food of the Wa-chaga is mostly vegetable. Fish are absent from the streams of their country; but, moreover, like the Wa-taita, they think them unfit to eat, and of the same nature as serpents. They breed fowls in large numbers, but merely to sell to the passing caravans of traders from the coast, for they themselves abjure poultry as food, thinking it unwholesome and unmanly. Their other domestic animals are the ox, the goat, the sheep, and the dog, though the latter animal is rarely seen. The oxen are much valued. They belong to the humped Zebu breed prevalent throughout East Africa from the days of the ancient Egyptians. The goats are small and handsome, with poorly developed horns, drooping ears, and often two small appendages of skin in place of the ordinary beard. The sheep are of large size, hairy, with fine dewlaps and drooping ears. The male has an enormously fat tail, developed to such an extent as to really impede his movements. A fine sheep may be bought for from 4 to 8 yards of cloth, a fat goat for about the same cost, and a milch goat a trifle dearer.

Milk enters largely into the diet of the Wa-chaga, and they are also passionately fond of warm blood fresh from the throat of a newly slaughtered animal. Whenever I killed an ox for my men—who being Mohammedans insisted on cutting its throat and letting it bleed to death—the Wa-chaga would assemble with their little wooden bowls, and as the animal lay in its death throes on the ground, the hot purple blood spurting at high pressure from the severed veins, the eager natives filled one after the other their wooden vessels and then stepped apart from the crowd to drink the coagulating gore with utter satisfaction and a gourmet's joy. They are great flesh-eaters when they can afford it, but, as I have already said, their main diet is vegetable. Among the plants grown for food are maize, sweet potatoes, yams, arums, beans, peas, red millet, and the banana. Tobacco is also largely cultivated, and the natives chew it and consume it as snuff mixed with salt. Honey is produced in immense quantities by the semi-wild bees which make their hives in the

wooden cases put up by the natives among the forest trees. A large barrellful may be bought for two yards of cloth.

The Wa-chaga inhabit the western, southern, and eastern slopes of Kilimanjaro. The northern side of the mountain is without any other inhabitants than roving bands of Masai. The principal Chaga states, beginning on the west, are Shira, Kibong'oto, Machame, Uru, Kibosho, Mpokomo, Moshi, Kirua, Kilema, Marang'ú, Mamba, Mwika, Rombo, Useri, and Kima'ngélia. Although these little states are perpetually quarrelling among themselves, they are nevertheless closely united by ties of blood and possess a common language. Ki-chaga is a very interesting Bantu dialect, preserving many of the prefixes in apparently archaic forms. It is intermixed with a few Masai terms in its vocabulary, but its grammar is perfectly untouched.

The inhabitants of Méru, Kahé, and Ugweno speak dialects closely allied to Ki-chaga. The tongue of Ugweno is, if anything, more archaic than the others, and offers most interesting points for consideration. I have made a careful study of all these dialects, and hope to publish the results shortly.

I will conclude my paper by a few words on the two remaining races to be noticed in this hasty review of the Ethnology of Eastern Equatorial Africa—the Masai and the Gallas.

The Masai are a well-marked variety of African man ranging like semi-nomads over the vast tract of plain country between one or two degrees north of the Equator and 5° 30' south. They certainly had their origin northwards, and in all probability merge into races inhabiting the great unknown tract lying between the Nile and Gallaland. The Masai primarily admit of two great divisions, the Masai proper and the so-called Wa-kwavi, or El-Oigob. These two peoples, who are of the same stock and speak almost identically the same language, are nevertheless in perpetual conflict. The Wa-kwavi, as they are always called by the Wa-swahili traders, are Masai who have, through loss of cattle and other reasons, become settled agriculturists, and have adopted a peaceful and honest mode of living. The Masai proper still live a semi-nomad life, do not till the soil nor cultivate, keep huge herds of cattle and goats, and are bold and daring robbers. I call them semi-nomads because each tribe ranges generally over a given district and within certain limits. They also live in their quickly constructed towns during the rainy months. A Masai town or village consists of a huge circle of low huts, surrounded by a thorn fence. In the middle of this enclosure the cattle are kept at night. Their huts are generally built as follows:—First making a rough framework of pliant boughs, which are bent over and stuck in the ground at both ends, they plaster on this a mixture of mud and

ox-dung, and for further resistance to heavy rain hides are thrown over the top outside. The height of the dwelling barely exceeds 4 feet. There is a low porch-like door. The only attempt at a bed is a hide laid across a row of sticks.

The Masai youth is circumcised in a peculiar manner at the age of sixteen, and then enters the clan of El Moran, or the unmarried fighting men. Whilst in this condition he strictly confines himself to a diet of milk and meat. Moreover, he must not mix these two things, but before changing from one to the other must take a powerful purgative, so that, for instance, if he had been living on milk, and wishes to eat meat or drink blood, he must thoroughly clear his system before changing.

With the company of young warriors dwell numbers of unmarried girls, and a very dissolute life is led. At about the age of twenty-five to thirty the Masai warrior selects a girl as his wife, marries, and entirely changes his mode of life. His diet is now unrestricted, and he varies his milk and flesh with vegetable food and honey. It is now his object to acquire a large family of children, and his disposition becomes wholly altered from that of a bloodthirsty, vicious, ruffian to a dignified gentlemanly man. The Masai believe in a vague supreme being whom they call Engai, a word also meaning "the sky," or "rain," as I have previously mentioned. The Masai language is an exceedingly interesting one. It is sex-denoting, uses a definite article of two genders and two numbers, has several modes of expressing the plural, principally by suffixes and lengthening the word, it conjugates its verbs by prefixes and suffixes, and uses *pre*-positions and not *post*-positions. But the most remarkable points that my slight study of it has revealed to me are the distinct though distant signs of relationship it bears to the Galla. Now is not the time for me to enter on a prolonged philological argument, but I hope at some future time to be able to work up the proofs necessary to establish this interesting fact.

The Gallas are advancing somewhat southwards in the direction of Mombasa, pushed on from the north by the hordes of turbulent Somalis. The Gallas are a race that there is some hope of civilising; they are at any rate not impossible to deal with—nor, with all their savagery and love of bloodshed, are the Masai, for whom also we may hope a brighter future, when they become encircled with civilisation; but the Somali! If it were reasonable to wish for the extermination of a whole race after the fashion of bygone Spanish colonisation, I could wish that race in Africa might be the Somali. Added to their naturally fierce and inhuman disposition, they have become fanatical Mohammedans and offer the greatest barrier to the opening up of that great eastern horn of Africa that can possibly exist.

FEBRUARY 24TH, 1885.

FRANCIS GALTON, Esq., M.A., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

- From the DIRECTOR OF THE BUREAU OF ETHNOLOGY, U.S.A.—Second Annual Report, 1880–81.
- From the AUTHOR.—Die Verbreitung des Blondes und des Brünnetten Typus in Mitteleuropa. By R. Virchow.
- Ein Weiterer Beitrag zur "Nephritfrage." By A. B. Meyer.
- From the ACADEMY.—Boletín de la Academia Nacional de Ciencias en Córdoba. Tom. VII, Ent. 2^a.
- Atti della Reale Accademia dei Lincei. Serie 4, Vol. I, Fas. 4.
- From the ASSOCIATION.—Proceedings of the Geologists' Association, 1884. No. 8.
- Proceedings of the American Association for the Advancement of Science. Minneapolis, 1883.
- From the INSTITUTION.—Journal of the Royal United Service Institution. No. 127.
- From the COLLEGE.—List of the Fellows, Members, Extra-Licentiates, and Licentiates of the Royal College of Physicians, 1885.
- From the SOCIETY.—Proceedings of the Philosophical Society of Glasgow, 1884–5.—President's Address. By H. Muirhead, M.D.
- Journal of the Society of Arts. Nos. 1682, 1683.
- From the EDITOR.—Matériaux pour l'Histoire de l'Homme. Jan., Fév., 1885.
- "Nature." Nos. 798, 799.
- Science. No. 104.
- Revue Scientifique. Tom. XXXV, Nos. 7, 8.
- Revue Politique. Tom. XXXV, Nos. 7, 8.

Mr. F. GALTON exhibited a collection of composite photographs illustrating Jewish types.

The following paper was read by the Director:—

NOTES on the RACE-TYPES of the JEWS.

By DR. A. NEUBAUER.

THE history of the Jews from the earliest period up to our own time has been written and re-written many a time, by various authors and from various points of view. Jewish literature, biblical as well as post-biblical, has occupied many scholars for centuries, and we have arrived at a fair knowledge of it. Jewish customs and manners, both old and new, their thoughts in all branches of learning, their ethical teachings—all these have found champions. And scholars have generally agreed that the Jewish race have kept their blood unmixed. "It is the only pure race in Europe," says Dr. Andree, "besides the gipsies." This opinion is chiefly based on the fact that a Jew is almost at once recognised amongst thousands of others. The scanty intermarriages (a subject which I shall mention later on), they allege, did not disturb the individuality of the race. In the earliest times we find Abraham's son Ishmael becoming the father of the Arabic race, because he was the offspring of Hagar, an Arabian woman. Her name is Arabic, meaning "the flying," from which root also the word *Hejra*, "the flight of Mahomet," is derived. Isaac as well as Jacob is reported to have married an Aramean wife; Joseph married an Egyptian, and Moses is blamed for having married a Midianite. David descends from Ruth, the Moabitess; Solomon is the son of a Hittite woman, Bath-Sheba, and he himself married foreign women. It is, moreover, likely that the children of Israel married in Egypt Egyptian women, for a "mixed multitude went on with them" (Exodus xii, 38). We are often reminded in the Bible of the non-Jewish women who came in frequent contact with the Israelites. From all this we should conclude that the Israelites of old were descendants of a mixed race, though the priestly caste might perhaps be excepted.

The practice of intermarriage was continued by the Jews who returned from the exile, as can be seen from the following passage in Ezra (x, 11): "Now therefore make confession unto the Lord God of your fathers, and do his pleasure: and separate yourselves from the people of the land, and from the strange wives;" and from Nehemiah (xiii, 23): "In those days also saw I Jews that had married wives of Ashdod, of Ammon, and of Moab." The "stranger" and the "sojourner" mentioned in the Bible, a kind of proselyte, as well as the functionaries and the warriors of non-Israelitish race who served under the kings of

Israel, did certainly increase the mixture of the races by marrying Israelitish women. During the time of the second Temple the proselytes became more numerous through intercourse with the Syrians, the Greeks, and the Palmyræans, and many professed to be converted to Judaism in order that they might be allowed to marry Jewish women. The higher classes of these proselytes are known in the Talmud under the name of "proselytes of the table of the Kings." But, says Dr. Andree, "all the intermixture with heathen women, which took place in Asia in old time, had little effect on the physical constitution of the Jews, because they mostly married women of Semitic tribes." This argument does not hold good, at all events, as regards the Egyptian and Greek women, for the latter entered Judaism in Asia Minor in no small numbers, and they no doubt prepared the field for the Apostles. How, in fact, could the Apostles have quoted so freely from the Old Testament to people of the lower and middle classes if a part of them were not acquainted with the Bible through conversion? They certainly had not learnt it in the schools, as was the case with the philosophers.¹

And we are able to adduce more positive evidence as to the intermarriage of the Jews with non-Semitic tribes. At Rome it is mentioned that a patrician woman of the name of Fulvia embraced Judaism, no doubt with a great number of friends and slaves. The conversions at Rome were so frequent that a heavy penalty was decreed against those who became circumcised. Of course the converts married Jews—if not always, at any rate frequently. The passage of Tacitus ("History," v, 5), where it is said that the Jews keep pure blood in the Roman empire, adding, "*Alienarum concubitu abstinent*," means that the Jews did not marry *heathen* women; with her conversion the woman ceases to be an *aliena*. It is said in the Talmud "that the Jewish population in the Roman empire is in proportion to that of Judæa, as regards purity of descent, like paste made of mixed flour compared to pure flour; Judæa itself, as compared to Babylonia, is also only paste." In another passage it is said concerning purity of descent, "Babylonia is sound, Mesene is dead, Media is sick, and Elam in its last moments," which means that in Babylonia the purity of descent is spotless, in Mesene mixed, in Media doubtful, and in Elam more than doubtful. Can there really be a doubt about the frequent intermarriage between Jews and non-Semitic tribes? And had these mixtures no influence on the physique of the

¹ I discard the opinion of Dr. Richard Andree ("Zur Volkskunde der Juden," Leipzig, 1881), that Israelites as early as the period of the Judges had acquired Greek slaves from the Phœnicians, who were known under the name of Pilegesh = *παλλαξ*.

descendants? That there were families who kept up tradition so strictly that no proselyte could enter into them is doubtless true, but such was not the case with all classes. And in other countries, like Persia, Arabia, the land of the Khazars, and elsewhere, the same process went on.

But let us now come to other European countries besides Rome. The Councils of Orleans (538 A.D.), of Toledo (589 A.D.), and of Rome (743 A.D.) prohibit intermarriage between Christians and Jews; the same prohibition was enacted in many other Councils in later periods and in many other countries. As long as conversions were allowed legally, or by some means tolerated, intermarriages frequently took place. The Jew has no preference for or any aversion from one race or another, provided he can marry a woman of his religion, and *vice versa*. (It is not the place here to explain the psychological ground for this.) Intermarriage and climate are, in my opinion, the reasons for the differences in appearance between Jews of various countries. That traces of the original race are in very many cases, and perhaps in most cases, left, cannot be wondered at. The same traces are to be found in the Celtic races, the Slavs, and the Latins, with the difference that intermarriages between these races have taken place on a larger scale than amongst the Jews.

It is, in my belief, outside the question to distinguish two different tribes of Jews—1st, those with a well-developed nose, black and striking eyes, and fine extremities—in one word, the noble race of the *Sephardim*, or the Spanish-Portuguese Jews; 2nd, those who have a thickish nose, large mouth, and curled hair, features which are represented amongst the *Ashkenazim*, or the German-Polish Jews. Even Jews with red or fair hair are pointed out, but not as a special type. But this is only a revival of the old legend which existed for a long time amongst the Jews themselves in the middle ages, viz., that the noble Spanish race are descended from the tribe of Judah and the rougher German-Polish Jews from the tribe of Benjamin. This legend had such effect that intermarriage between the Spanish and German Jews was for a long time avoided. Now this ethnological fact would only be possible if we could admit that removal or voluntary emigration was carried on in such a systematic way that the tribe of Judah spread in the East and went to the Iberic peninsula, and that the tribe of Benjamin settled in France and Germany, from whence it came to the Slavonic provinces. There is, however, no trace of such a systematic emigration, and surely the Romans did not care at that time for the distinction of the two tribes, when they sold them as slaves or transported them for the sake of the safety of the empire. If such a separation of

types were admitted, we should have to make a third one for the Italian Jews, who stand between the German and the Spanish Jews. Can it be shown that communities exist composed only, or in the majority, of Jews with fair or red hair and blue eyes? Certainly not. On the contrary, we find often in a family a part of the children having a dark complexion and another part with fair hair. This phenomenon must be ascribed to some yet unknown reason or to the influence of climate.

What is curious to notice is that the manners and habits of the so-called distinct tribes are also different, in accordance with the features, viz., the Spanish and Eastern Jews have a kind of refinement in speech and gesture, while the German-Polish Jews are rougher in both; and the Italian Jews lie again between the two. But this also must be attributed to the manners and speech of the nations amongst whom they lived, and with whom they were in daily contact. We shall go further;—there is even a difference in the literature of the mediæval Jews of the two so-called tribes. The Spanish Jews are much more logical and clear in their casuistic compositions, and dislike scholastic discussions, whilst the contrary is the case with the German-Polish Jews, whose casuistry reaches the climax of logical mistakes, of scholastic torture, and absurd thinking. The Italians stand again between these two in this matter. Can this be attributed to a difference between the two tribes, or not rather to the character and tone of the nations amongst whom they lived? Another difference must be noticed also in the pronunciation of Hebrew words. It lies chiefly in the clear *â*, the *é*, and the *th*, with the Spanish Jews; for which the German-Polish Jews have an *o*, an *i*, and an *s*. The gutturals are not distinguished by either of the Jews except by those who live amongst the Arabs, whilst the *ain* is, strangely enough, pronounced by the Italian and by some Portuguese Jews as a nasal *ng*. This difference of pronunciation is not tribal, but influenced by the languages spoken round them. In a word, there are no two distinct tribes amongst the living Jews, and they are not of wholly pure blood. I believe that it is quite imaginary to say that the Jews represented on Egyptian and Assyrian monuments exactly resemble the Jews now living. Certainly we find individuals who bear a resemblance to the Jews of the monuments, and who may be the remnants of families which took special care against intermarrying with proselytes; but the bulk of the Jews, if dressed in European costume, would present few characteristics by which they could be recognised. The only strong similarity existing amongst the living Jews is that they often still bear, more or less, the stamp of oppressed individuals, a stamp which they cannot get rid of

quickly, since there are many countries even now where they are treated like pariahs, and from whence they emigrate to more civilised lands; and these Jews are at once recognised in the streets, but not those who have shared in the advantage of civilisation and education. As I have already said, there remains something typical in the features, just as in the case of the Celts, Teutons, Slavs, and other tribes. That the Jews keep together is by no means due to a tribal instinct; they were forced to do so by the Ghettos, and such a habit cannot be got rid of in one generation. That it is not the race which holds them together, but the religious community, may be concluded from the fact that they are interested in the amelioration of the Jews in Russia and the East, as also in that of the Falashas¹ in Ethiopia, the black Jews in Cochín,² and the Bene Israel in India,³ who are certainly not of their race.

We pass now from the ethnological question to the anthropological results relating to the Jews. We shall find here also the same abnormal state of things and contradictory statements on the part of those engaged in research. Let me state at once that there exist no skulls or skeletons belonging to ancient Jews, and in all probability none will be found. In the climate where they are buried, none can be preserved except by embalming, which was not frequently in use in the Jewish nation. The dead were too much respected amongst the Jews of all ages to allow of any pathological examination of the corpse; indeed, every effort was always made, and is still made, in the orthodox communities of Poland, Hungary, and the East, to avoid a post-mortem examination. This is most likely due to the same superstitious repugnance that the Mohammedans have to amputation, in order that the body may be kept intact until the time of the resurrection. It is a matter of the greatest difficulty even now, as stated by Dr. Blechmann in his essay "On the Anthropology of the Jews" (*Ein Beitrag zur Anthropologie der Juden*, Dorpat, 1882), to induce a Jew to be

¹ The Falashas are a tribe which is not Semitic, but rather Nubian. The name Falasha means "immigrated"; they believe themselves to be descendants of the queen of Saba. Their language is a kind of Amharic, and they do not know Hebrew at all. Their Bible is written in Ethiopic, and their hymns in the vernacular language. They observe strictly the laws of the Pentateuch, except as to some local modification, but know nothing of the Jewish traditional interpretation, neither of the Rabbinic (the Talmud), nor of the Karaitic (of those who repeat the Talmud but have another traditional interpretation).

² Of the black Jews Dr. Buchanan says that he could not distinguish them from the Hindoos. The missionary, Joseph Wolf, says of them in 1833: "Their complexion is like that of the Hindoos; indeed, even at this time, many of the Hindoos at Cochín become converts to Judaism."

³ The Bene Israel are fixed in the neighbourhood of Bombay; they pretend to be descendants of the ten tribes, but their features are Hindoo. They do not know Hebrew at all, but observe the laws of the Pentateuch.

measured, so that we have to rely mostly for the physical state of the Jews on information gathered from examination for the general military service. We shall put together what is known about Jewish skulls from the dissertation of Dr. Blechmann. The first notices, he says, were given by Blumenbach, who states (in 1790) that a Jewish skull in his possession was recognised amongst many others as peculiarly formed, even by men whose speciality was not anthropology. His description is the following:—"Maxime quidem nasus aquilinus et mentum porrectum, tum vero etiam maxillæ superiores qua naribus subjectæ sunt in acutiorem angulum spinæ nasali continuum concurrentes. Suture non tantum genuinæ illæ ossium calvariae planorum, sed et reliquæ quas harmonias vulgo vocant, ad unum fere omnes senio decrepito confusæ et oblitteratæ." Wachter (in 1812) gave after him a description of another skull which represents another Jewish type, most likely of a Spanish Jew. He confirms Blumenbach's statement, adding that he found in the external part of the orbit, where in general the temporal nerves lie, an important cavity or depression, whilst in the interior of the orbit he found an elevation. He also says that Professor Brugmans at Leyden had found the same peculiarities in two other Jewish skulls. Of course, in order to make this a standard peculiarity of Jewish skulls, many other skulls in all parts of the world must be examined. Blumenbach might have left unnoticed this peculiarity in the skulls which he possessed. As to the measure of Jewish skulls, Pruner-Bey (in 1864), who had three of them, gives 75 mm.; Welcker (in 1866), who examined eighteen skulls, found an intermediate skull with 78·4 mm.; he does not give the measure of each. Dr. J. B. Davis (in 1867), who examined seven skulls, finds the measure from 71 to 84, intermediate 77·1; finally, Dr. Weisbach (in 1878) gives the intermediate of 81·11, and from the measure of nineteen living Jews he gives the measure of 79 to 88, intermediate 82·15. So far for the skulls.

Dr. Blechmann gives statements of the height of the Jews, the measurement of the chest, the length of the arms and of the extremities, according to military reports in Russia, Germany, and the Austrian provinces, which are not very favourable to the physique of the Jews in general. They are short, measure in circumference less than half of the height, and they are very weak on the whole. Dr. Blechmann comes also to the conclusion that the differences in the measure of the skulls, which I have noticed above, represent different types of Jews, of which he admits also the two above mentioned, viz., the Spanish and German-Polish. He quotes authorities for it, such as Dr. Weisbach, Karl Vogt, Franz Maurser and finally Dr. Andree; the

information of the last is second-hand and inaccurate. No one of them makes out a special type of the Jews with fair or red hair, but they all firmly believe that neither intermarriage nor climate has had any influence on the physique of the Jews, and that the Jews of the present time greatly resemble those on the monuments of Egypt and Assyria. I have already doubted this, and stated my view as to the impossibility of two separate emigrations of two types. At all events no certainty can be attached to reports of the physical condition of the Jews until individuals are examined in the various parts of the world. Jerusalem, for instance, possesses Jews of the greatest variety and the beginning of the system of measurement could be made there, but they are all nearly half famished. Next, the state of health and the relation of the height to the size of the chest among the Jews in Yemen and Kurdistan, where they are shepherds, agriculturists, and artisans of all kinds, will have to be investigated. Only then shall we be able to decide why the descendants of the Macchabean warriors and of those who kept Titus and Hadrian thoroughly occupied for several years, are now proportionally less fit for military service and more delicate in health than their Christian brethren.

The following paper was read by the author:—

On the RACIAL CHARACTERISTICS of MODERN JEWS.

By JOSEPH JACOBS, Esq., B.A.

[WITH PLATES I AND II.]

IN the following research I have endeavoured to bring together all the data, scientific or historical, which bear upon the question of the purity of the Jewish race. I have found it necessary for this purpose to scrutinise somewhat closely many Jewish qualities and habits that have hitherto been regarded as peculiarly the results of race. Most of these, however, have been found to be due to social causes, and cannot therefore be regarded as primarily racial. Nevertheless I trust even the discussion of the secondarily racial qualities of Jews with which this paper opens may not be without interest to students of anthropology. They exhibit, I conceive, a striking example of the influence which the social life of man has upon his physical qualities. For a decision on the main question, I have been forced to turn

to history, which is on this occasion more than usually Janus-faced.

We have first of all to determine which are the Jews whose racial qualities we are to determine. I have made the following estimate, necessarily rough, of the various classes of persons now living, who may claim to be Jews by religion or by birth, or by both.¹

Name.	Country.	Number.	Per cent. of whole.
A. Jews both by religion and by birth ..			
Ashkenazim	Teutonia and Slavonia	6,925,000	98·9
Sephardim	Romance, Levant, Africa	6,500,000	92·8
Samartians ?	Nablus	425,000	6·1
		150	..
B. Jews by religion, but not by birth ..			
	..	75,000	1·1
Falashas ²	Abyssinia	50,000	..
Karaites	Crimea	6,000	..
Daggatouns, &c. ³ ..	Sahara	10,000	..
Beni-Israel ⁴	Bombay	6,500	..
Cochin ⁵	Cochin	1,600	..
C. Jews by birth, but not by religion ..			
	..	12,000	0·2
Chuetas or Anussim ⁶	Balearic Is.	6,000	..
Maiminen ⁷	Salonichi	4,000	..
G'did al Islam ⁸ ..	Khorassan	2,000	..

Besides these, there exist a large number of persons, mostly in Europe, who have Jewish blood in their veins as descendants of Jewish converts. This is specially the case in Spain, where Jewish blood has filtrated through all ranks of society up to the very highest, and the same is said of certain districts of

¹ The best enumeration of Jews is by M. I. Loeb, art. "Juifs," in Saint Martin's *Dictionnaire de Géographie*: his chief errors are making the number of Russian Jews too low by a million, and the Falashas 200,000 instead of 50,000.

² Rohlfs in Petermann "Mittheil," 1883, p. 213.

³ Serour, "Les Daggatouns," 1880. I include in this number the Mavambu or Negro-Jews of the Loango Coast (*vide* Andree, "Volkskunde d. Juden," 1881, p. 90).

⁴ Census of India, 1881, gives 7,952 Jews in British Bombay.

⁵ "Jüd. Littblt," 1883, No. 36. The number of Jews in China is unknown.

⁶ Descendants of Spanish Jews still isolated. Lewin, *ibid.*, No. 30.

⁷ Descendants of followers of the Jewish "Mahdi," Sabbathai Zebi. Graetz in "Monatsft," 1884, Feb.

⁸ Jews forcibly converted to Islam thirty years ago, "Vesillo Israel," April, 1884.

mid France. The anthropology of Jews can never be satisfactorily settled till careful examination of these various data has shown their resemblances and differences. From the common qualities of classes A and B we can determine qualities due to religion; from those common to A and C, but differing in B, we might draw valuable conclusions as to influences of race. As a matter of fact, for the second and third classes we have practically no data to work with, except the vague impressions of travellers, and we must therefore confine our attention to the two chief divisions of Jews: (1) Sephardim, mostly descendants of the refugees from Spain in 1492, and now residing on the littoral of the Mediterranean,¹ and (2) Ashkenazim, dwelling in all the countries inhabited by Teutons or Slavs. The latter form an overwhelming majority (93 per cent.), and our information about them is tolerably extensive and reliable.

What are the qualities, if any, that we are to regard as *racially* characteristic of Jews? Much vague declamation has been spoken and written on this subject. All the moral, social, and intellectual qualities of Jews have been spoken of as being theirs by right of birth in its physical sense. Jews differ from others in all these points, it is true, as I have partly shown elsewhere.² But the differences are due, in my opinion, to the combined effect of their social isolation and of their own traditions and customs, and if they have nowadays any hereditary predisposition towards certain habits and callings, these can only be regarded as secondarily racial, acquired hereditary tendencies which cannot be brought forward as proof of racial purity. If all the Johns and Maries of Europe were to be shut up in ghetti for a couple of centuries they would undoubtedly show peculiarities in habits and thought; they would develop a Johannine psychology, as it were, and most probably, as we shall see, a Johannine biostatics. And there is another reason why the psychological traits of Jews must be omitted for the present from any research which claims to be scientific. Science was to Condillac a hundred years ago only a well-constructed terminology (*une langage bien faite*); nowadays science is measurement accurately calculated. Now though I hope to show on some future occasion that the intellectual capacity of Jews, if not absolutely, is yet relatively measurable as compared with that of other Europeans, I should still hesitate to qualify these distinctions as racial in a strict sense. They seem more a matter of temperament, which is at best but the tone of race, and is much more modifiable by education and environment than

¹ I have reckoned in with the Sephardim the Italian Jews and those under Moslem rule.

² Vide my "Studies in Jewish Statistics" (*Jewish Chronicle* Office).

purely racial characteristics, so that it may happen that widely diverse races, *e.g.*, Jews and Frenchmen, may have much the same temperament. Under any circumstances it would be difficult for a Jew to avoid subjective bias in dealing with these matters, and where that bias leads to any assertion of superiority the result is as unsatisfactory from the point of view of science as it is from that of taste. It remains then to consider those qualities of Jews which depend on physical properties, and these have the further advantage of lending themselves to accurate measurement. These are (1) the vital statistics of Jews—marriages, births, deaths, diseases—and (2) their anthropometry or bodily measurements.

I. *Vital Statistics.*

As I have already given in my "Studies in Jewish Statistics" the results of my search among statistical publications on Jewish biostatistics, I will here content myself with giving a summary of the conclusions at which I have arrived. These are as follows:—¹

1st. Jews have a less marriage rate, less birth rate, and less death rate than their neighbours, but the less marriage and birth rate are due in large measure to the less mortality of Jewish children. The larger number of children living causes the percentages of marriages and births, really larger as regards adults, to seem smaller when reckoned on the whole population.

2nd. Jews and Jewesses marry earlier than the surrounding populations. Cousins intermarry more frequently, perhaps three times as often.

3rd. Jews have larger families, though fewer plural births. On the other hand, mixed marriages between Jews and persons of other race are comparatively infertile.

4th. In Jewish confinements there are more boys, less still-births, and fewer illegitimate births, though the advantage as to still-births disappears among Jewish illegitimate children.

5th. Jews have a smaller mortality of children under five, but this does not hold of Jewish illegitimate children, who die off at much the same high rate as the unfortunate beings of the same class in other sects. Jewish deaths over sixty are generally greater in proportion. Jews commit suicide less frequently.

6th. It has been frequently asserted that Jews enjoy an immunity from certain diseases, notably phthisis and cholera, but the evidence I have on this point is adverse to the claim. There is some indication that they are more liable to diabetes and hæmorrhoids, and they have certainly more insane, deaf-mutes, blind, and colour-blind persons.

¹ *Vide* my "Studies," No. VII, pp. 49 *et seq.*

7th. I would add two social facts of great importance in their bearing on vitality: (a) the vast majority of Jews live in cities; (b) Jews have a larger proportion of poor than the peoples among whom they dwell ("Studies," II and IV).

This long list of divergences between Jewish and general statistics might seem at first sight to imply strongly marked racial differences. But when closely examined, almost all of them are seen to turn on social characteristics. Thus the frequency of consanguineous marriages and the smaller proportion of illegitimate births and of suicides are clearly due to social causes. The same may be said of the earlier age at which Jewish marriages occur,¹ and from this follow their greater fertility, and probably the larger proportion of male births. Again, if less still-births and less mortality under five among their offspring were physical characteristics of all Jewesses, we should find them to some extent at least among illegitimate Jewish births and children.² But as a matter of fact the superiority is confined to legitimacy, and must therefore be attributed for the most part to social causes, the greater care taken of Jewish children, and of Jewish mothers. Thus we are left with only four biostatistical points which cannot be *primâ facie* resolved into social phenomena, and may therefore be referred to influences of race. These are—(1) the less number of twins and triplets; (2) the infertility of mixed marriages; (3) the greater longevity of Jews; (4) their alleged special morbidity or liability to disease. The paucity of plural births we may dismiss, as nothing is known of the cause of these.

Infertility of mixed marriages deserves more attention, owing to its important bearings on the main question of this paper. As I may claim to have first drawn attention to the subject, I will here repeat the evidence on which I found it. In Prussia these marriages have been separately registered since 1875, and between that year and 1881 there were 1,676 such marriages, resulting in 2,765, an average of 1.65 to a marriage, whereas during the same period pure Jewish marriages resulted in an average of 4.41 children, or very nearly three times as many ("Zeit. Preuss. Stat.," 1882, p. 239). In Bavaria, between 1876 and 1880, 67 mixed marriages were registered, the resulting offspring being only 76, or only 1.1 per marriage, against 4.7 children to purely Jewish marriages ("Zeit. Bay. Stat.," 1881, pp. 188, 213). This conspicuous infertility also implies greater

¹ The earlier age of puberty may influence this, but I have shown the importance of social and religious causes in my "Studies," VII, where I attempt to connect this phenomenon with the fertility of Babylonian palms.

² F. J. Neumann was the first to use this crucial test (Brentano's "Jahrbuch," 1877).

sterility. Among 56 such marriages where I could ascertain the results, no less than 9 were sterile (18 per cent.), a striking contrast to the number of sterile marriages which I found in 71 marriages between Jewish cousins, where the percentage of sterility was only 5·4 per. cent. (*cf.* "Studies," p. 7). At the same time I must add that I found no other ill results. Of 85 families, only 2 were afflicted, about the same number as would be found among Jews in general, whereas 84 first cousin marriages included no less than 13 in which there were deaf-mutes or lunatics. The uniform infertility of mixed marriages can scarcely be due to any uniformity in the ages of the contracting parties, the chief determining factor of fertility, so that we may take it as a racial phenomenon, or, to make a rather fine distinction, as a phenomenon indicating racial differences.

The *longevity* and *vitality* of Jews are by no means so universally superior as has been thought; the superiority disappears in large measure among Jewish populations which, like those of Galicia and Russia, have a large proportion of day labourers.¹ So far as it is founded on the low death rate, it can be attributed rather to the greater care taken of children under five, which after all means that more weakly individuals are kept alive to carry on an unequal struggle for existence. It certainly would appear extraordinary if Jews enjoyed exceptional vitality, considering the insanitary conditions of their lives in the past, and their weakly constitution in the present. I have been able to obtain some details of the way in which they used to be overcrowded in the ghetti—

Place.	Date.	Jews.	Houses.	Average.	Authority.
Prague ..	1786	7,951	266	29·3	Ficker's "Bevolk. Böhmen," p. 55.
Frankfort ..	1811	2,214	159	13·9	<i>Times</i> , Aug. 8, 1884.
Prague ..	1843	5,646	279	20·3	Ficker, <i>ibid.</i>

And Tchubinsky reports that in 1840 the Jews of Southern Russia used to dwell thirteen in a house, whereas the general population had only from four to five ("Globus," 1880, p. 340). So, too, the military statistics show an extraordinary number of individuals who are unsuitable for military service owing to their weakly constitution (*cf.* Goldstein's paper in "Revue d'Anthropologie," July, 1884). And where any superiority in vitality is

¹ *Cf.* Bergmann, "Beiträge," 1883, pp. 145-6.

shown, this again may be traced to moral and social causes. Jews do not lead "dangerous" lives in the insurance sense (sailors, soldiers, firemen, miners, &c.). The trades which they do exercise, except that of tailoring, seem more long-lived.¹ Further, the Jewish nature does not seem to require stimulants, and Jews are markedly free from alcoholism. The tranquilising effects of Jewish family life, the joyous tone and complete rest of the Sabbath and other festivals, the unworrying character of the Jewish religion, are all important in the difficult art of keeping alive. The greater care taken of Jewish women, who more rarely take to manual labour, aids also in producing good results in the tables of mortality. I attribute much importance, too, to the strict regulation of the connubial relations current among Jews.²

I am unable to attribute much beneficial influences to the Jewish dietary laws, though the matter requires careful and unbiassed examination. These may be divided into four divisions, developed in chronological sequence—(1) the Biblical distinction of clean and unclean (Lev. xi); (2) the Talmudic method of cutting the animal's throat (*Shechita*) for the purpose of removing the blood; (3) *Bedika*, or examination of the chief organs to see if there are any lesions, developed after Talmudic times; (4) *Melicha*, or putting the flesh into salt and water to remove the blood; the origin of this is uncertain, nor is it clearly mentioned in the Talmud. It may have some connection with the practice of using salt with sacrifices (Lev. ii, 13). (1) The diet prescribed by the Bible, as by all Oriental legislation (Manu, Zoroaster), was doubtless due to a rough induction from popular experience. Apart from a few anomalies,³ it coincides in the main with the dietary of all civilised peoples with whom the ruminants, being the chief domestic animals,

¹ The indefatigable Korösi has given from Schimmer statistics showing that while 37 per cent. of Catholics (over 14 in Buda Pesth) followed certain trades of high mortality, and Protestants about 33 per cent., Jews had only 22 per cent. in these industries ("Pest in 1870," p. 45).

² Query: may this custom of separation (Lev. xv, 19) have any connection with Jewish proficiency in music, which in its origin seems to be also regulated sexual emotion? (cf. Darwin, "Descent," p. 573, and Gurney, "Power of Sound," chap. vi, pp. 116-121).

³ It is possible that some of these anomalies may be explained as survivals of totem worship derived by the ancient Hebrews from the Canaanites, or existing among themselves. Even in Ezekiel's time the Jews worshipped "every form of creeping thing and abominable beasts" (Ezek. viii, 10), and it has been contended that they worshipped totems, and no member of a totem clan will eat the totem animal. When, therefore, we find in the same passage Jaazaniah ben Shaphan (i.e., son of the Coney or Rock-badger) in the same passage (verse 11) officiating at these totem-rites, totemism is given as the reason why the coney was included among the taboo'd food of the Israelites (Lev. xi, 5). On the whole subject cf. Prof. Robertson Smith, "Journal of Philology," 1880.

form the staple diet. The chief exception is, as is well known, the use of pork. This has been found to be injurious in hot climates, but in northern latitudes the chief danger has been found to be from trichinosis. So far as this affects vitality, Jews are undoubtedly free from this source of danger, but it scarcely seems to be prevalent enough to affect the death rate. (2) *Shechita* seems to have been originally confined to animals intended for sacrifice on the principle that "the blood is the life," and that this must be entirely spilt. It was afterwards extended to secular food, and it is nowadays contended that the removal of the blood is a safeguard against waste-products contained in it. Whatever advantages this gives must also be enjoyed by Mohammedans, who have borrowed it, as well as the Biblical distinction between clean and unclean, from the Jews. As a matter of fact, it does not remove all the blood, since Jewish practice requires a further process, insertion in salt and water (*Melicha*), to ensure this. (3) The *Bedika*, or examination of the internal organs, seems based on a correct principle,¹ but it has never been ascertained how far this is carried out in practice; it certainly does not ensure immunity from tubercle, as we shall shortly see. (4) About this it is sufficient to say that it does not effect its purpose. The originators of these practices, I may add, did not claim any medical validity for them, carefully distinguishing cases where food should not be eaten for medical, as opposed to religious, reasons. Some Jewish writers have even declared the flesh of the swine to be highly nutritious (*cf.* Kalisch on "Leviticus," II, p. 82).

These practices certainly do not secure *immunity* from any special diseases, as has been claimed for them in recent years, especially as regards cholera and phthisis. We now know that the Jews fell victims to the Black Death as much as their neighbours (Hœniger, "Der Schwarze Tod in Deutschland," 1881). As regards cholera, the only favourable result I can find is a strong tradition that Jews suffered less from it when it visited England in 1834, and last year at Marseilles their death rate from it was only 2 per 1,000, against 5 of the general population ("Vessillo Israel," September, 1884). On the other hand, I find in 1873 the mortality from cholera in Hungary greatest where there were most Jews, *e.g.*, 63 per 1,000 in Drohobycz, where half the inhabitants are Jews ("Statist. Monatsft," 1875, p. 136). In Smyrna, 1848, mortality from this pest carried off 1 in 26 among Jews, 1 in 40 among Moham-

¹ It is scarcely likely, however, that the Rabbins were in any sense anticipators of Koch and Pasteur, for they considered the function of the lungs to be to absorb the liquids of the body. See Talm. Bab., Beracoth 60 a, a passage which shows them to be by no means in advance of Hippocrates and Galen.

medans, $\frac{1}{73}$ Greeks, $\frac{1}{80}$ Catholics, $\frac{1}{200}$ Armenians (Burguière's "Etudes sur la Cholera à Smyrne," Paris, 1849, in A. Hirsch "Hist.-Geog. Pathologie," 1st edit., I, 129); and Bonnafort noticed the same for Algiers (*ibid.*), and Lombroso for Verona (Legoyt, "Immunités," p. 65). The alleged immunity from tubercular disease disappears in the same way on reference to definite results.¹ In Verona, 1855-64, Lombroso found among 272 Jewish deaths 6 per cent. from phthisis, against 7 per cent. among Catholics, and in an Hungarian district Glatter found this disease (*Lungentuberculose*) causing 14.4 per cent. of 473 Jewish deaths, against 16.9 Magyars, 16.4 Slovaks, and 19.5 Servians, but against only 13.5 of German deaths,² (Casper "Vierteljahrschrift," XXV, p. 48). These are the only favourable statistics, and by no means exceptionally so. Here in London, of 1,215 deaths attended by the medical officer of the Jewish Board of Guardians 1862-71, I have found that no less than 159 were due to tubercular disease, 13.1, against 11.3 for the Whitechapel district for the same period (Registrar-General's Report, XXXV, Suppt., p. 37). I find phthisis especially prevalent among Jews in Egypt according to Pruner, in Algeria according to Haspel, Bertheraud, and Pietra Santa (Hirsch, II, 95), and in South Russia according to Tchubinsky ("Globus," 1880, p. 377). Strong confirmatory evidence of the last statement may be seen in the fact that among the Russo-Jewish recruits of 1877-8 no less than 4 per cent. were dismissed for phthisis (a disease that cannot be "malingered"), against only 1.3 of the Polish recruits (Goldstein in "Revue d'Anthrop.," 1884, p. 470). We cannot therefore, in the face of these facts, claim any immunity from phthisis for Jews. No claim has been made for freedom from zymotic diseases; such immunity would be but a doubtful boon, as it would only leave freer field for the demon Bacillus to batten on, and the same might be said of the alleged immunity from phthisis. Syphilis seems to be less prevalent among Jews;³ but this may be due to moral causes,

¹ On this see Dr. H. Behrend, "The Communicability of Diseases of Animals to Man" (*Jewish Chronicle* Office). Unfortunately, Dr. Behrend has undertaken to show why the practice of *Bedika* should produce immunity from phthisis before ascertaining whether the immunity exists. And certainly he proves too much in the pamphlet referred to when he points out that 80 per cent. of animals slaughtered are infected with tuberculous disease. For only about 42 per cent. are rejected by the Jewish butchers, many of them merely for faults in the mode of slaughter.

² On the other hand, Jews had 4.7 of deaths from tubercular cerebral inflammation, against 2.2 Serbs and Slovaks, 2.6 Magyars, and 1.5 Germans.

³ Dr. A. Cohen, late Senior House Surgeon of the Metropolitan Free Hospital, has kindly given me the following details of the venereal cases coming under his notice during hospital practice in 1882-3. The numbers are those of all the venereal cases; the percentages in the first two rubrics, those of syphilitic cases;

and in so far as it is the result of circumcision¹ it is clearly not racial. The smaller proportion of congenital cases follows from this, and is thus only secondarily racial.

But if we cannot claim for Jews any racial immunity from special disease, neither can it be asserted that they are liable as a race to any, such as hæmorrhoids and diabetes. So far as these are prevalent among Jews they are due to sedentary habits. Even the most widely spread of Jewish diseases, insanity, blindness, and deafmutism, can be traced in part to their life in towns, their mental activity, and exciting occupations. With regard to deafmutism, I am inclined to lay some weight on an explanation which is nowadays thought to be exploded, viz., the influence of consanguineous marriages (*cf.* "Studies," p. 8, and *supra*, p. 28). Thus on examining some 28 families of children at the Jews' Deaf and Dumb Home, Walmer Road, I find that families where the parents are unconnected have 1·2 mutes per family, those where the parents are second cousins 1·5, and where the parents are first cousins there is an average of 3 mutes per family. The numbers are too small to enable us to draw definite results, but they suggest the need of further inquiry into this point.

Thus throughout our review of Jewish biostatistics we have failed to find any phenomenon which was uniformly present in all Jews that could not be referred to social causes. No doubt there is reciprocal influence between nurture and nature, and the Jewish organism may show some traces of the beneficial influence of Jewish training, as it certainly shows traces of the

the complementary ones would give those of gonorrhœa. The percentage relating to children are those of congenital syphilis observed in the number of children examined.

	Men.		Women.		Children.	
	No.	Per cent.	No.	Per cent.	No.	Per cent.
Jews	122	17·8	10	20·0	153	3·3
Others	539	62·0	192	62·6	367	15·8

The number of Jewesses affected altogether was too small to afford trustworthy results. The proportion of Christian to Jewish patients was about three to one, the hospital being in the centre of the Jewish quarter of London.

¹ No investigation of the effects of this very widely spread custom (*cf.* Andree, "Arch. f. Anthr.," xiii, pp. 53-78; Ploss, "Das Kind," I, pp. 342-372) on venereal diseases has been made. It certainly does not produce immunity from gonorrhœa, which is mentioned both by Bible (Lev. xv, 2) and Talmud (Bergel, "Medizin des Talmuds," p. 40). On the possibility of an Egyptian origin of circumcision see Welcker in "Archiv. f. Anthrop.," x, p. 123. The phallus examined was of the fifteenth century B.C.

ill-effects of the environment in the bodily measurements to which we shall soon turn. But these influences are, in the first instance, social, not racial, and *cannot therefore be adduced to show common origin*. If we may restrict the word "Jewish" to properties due to the origin of Jews, and "Judaic" to whatever is due to their religion or customs, we may say that their biostatics is Judaic, not Jewish. To revert to our original illustration, if the Johns and Maries whom we imagined cooped up in ghetti had married as early, treated their children as tenderly, if the Johns had nurtured the Maries as well, if they had had the same pleasing family life and care of poor by rich, as Jews, they would have developed a Johannine biostatics largely resembling the Jewish. But these Johannine qualities would not be due to common origin, and would therefore be what I have termed "secondarily racial," and so it *may be* with Jewish qualities. So far as Jews enjoy certain vital advantages over their neighbours these depend on the simple antique virtues and customs of the Jews and Jewesses of past and present. These advantages will persist as long as the virtues remain, and disappear, as in some respects they are disappearing,¹ when the bonds of religion and tradition are relaxed.

We turn then in our search for purely racial characteristics of Jews to the measurements of their outward qualities, to their

II.—*Anthropometry.*

It might seem impossible that we should be disturbed here by having to consider any social factors. Yet, as regards two important sections of anthropometry—height and girth—social considerations have great weight, and, indeed, it would not be impossible to show their influence on colour-blindness, on the shape of the skull, which alters with increased mental activity, and perhaps even on the colour of the hair and eyes, which are not, in the long run, independent of quality and quantity of nutrition. But, on the whole, we may neglect these disturbing causes and take the following measurements as distinctive of the Jewish race at the present day, leaving for later consideration the question how far they indicate purity of race.

Height and Girth.—Jews are nowadays the shortest and narrowest of Europeans (excepting, perhaps, Magyars as regards the former), as the following sets of measurements will show:—

¹ The rate of illegitimacy and of suicides has been rising while the death rate is rising relatively to the surrounding populations, and the excess of male births is falling.

No.	Country.	Height.	Span.	Girth.	Authority.
6592	Poland ..	161·2	..	80·1	Snigerew, "Revue d'Anthrop.," 1884, p. 470.
4372	„ ..	161·1	..	..	Uke, in Andree, "Volkskunde," p. 32.
826	Galicia ..	162·3	..	79·4	Majer and Kopernicki, "Charak, Fizyck, Galic," pp. 37 and 59.
810	Hungary	163·3	..	..	Scheiber, "Arch. f. Anthrop.," xiii.
130	England	170·8	..	89·5	Jacobs. ¹
100	Russia ..	162·7	168·1	84·2	Blehmman, "Anthropologie."
72	Various ..	163·2	..	84·6	Weisbach, "Körpermess."
20	Russia ..	163·7	170·7	..	Schulz, from Blehmman.

In the British Association Report for 1883 there is a list of heights of eighty-five different races, among which English Jews come thirteenth with 169·2 cm., and Polish Jews, according to Majer and Kopernicki, as low down as seventieth. Again, in a list of 122 racial heights by Weisbach ("Novara Expedition," pp. 216-217), Jews come seventy-sixth with Schulz's measurement, and would be much lower down with 162·1 cm., the mean of the above 12,922 measurements.

I may mention that the Jews measured for the British Association were of the higher social grades, and their superiority over the other Jews is undoubtedly the result of better nurture. The smaller height of Jews may thus be partly due to their residence in cities ("Brit. Assoc. Report," 1883, p. 284); tailors are also the smallest of men, and a much larger proportion of Jews are tailors. Goldstein has determined from Snigerew's measurements that Russian Jews have a smaller chest-girth, both absolutely and relatively, than other Russians, and he therefore credits them with a less "index of vitality." ("Revue d'Anthropologie," 1884, p. 481.) Other bodily measurements have been too sporadic for record, being limited to 19 examined by Weisbach, 20 by Schulz, and 100 by Blehmman.

Craniometry.—The few results reached in this branch of anthropometry seem to show that Jews are predominantly brachycephalic, and are not physically long-headed. Only thirty-four skull measurements are given by Stieda ("Arch. f. Anthrop.," xiv, 68) from Pruner-Bey, Welcker, Davis, Weisbach, and Dusseau: these give an average index of 77·3. To these I would add fifteen given by Lenhossék ("Cranioscopia," p. 167), with an index of 80·5, and five of Italian Jews, which I calculate

¹ From the measurements made for the British Association by Dr. M. Davis, who kindly lent me the results.

from Legoyt ("Immunités," p. 66) to have the same index. All the fifty-four skulls would therefore give a mean index of 78·5, more meso-cephalic than otherwise. But the larger number of measurements on the living subject give results as follows:—

No.	Index.	Dolicho-	Meso-	Brachycephalic.	Observer.
67	82·2	19·4	26·9	53·7	Dybrowski.
100	83·2	3·0	11·0	86·0	Blehmänn.
313	83·5	4·8	10·9	84·3	Kopernicki.
380	83·4	8·1	16·6	75·3	Average.

With the larger numbers the brachycephalic character of the Jewish head seems to come out very distinctly. It is to be observed that Majer and Kopernicki considered that the ooidal head went with blonde hair, the brachycephalic with dark; but the number of long heads examined by them was small (fifteen) and Blehmänn found one of his dolichocephalic subjects with dark hair. He also asserts, without a particle of evidence, so far as I can see, that Sephardic Jews are dolichocephalic. Dr. Beddoe, indeed, states that Ashkenazim have mostly "ooidal" heads, but the above statistics only show how untrustworthy mere impressions are, even when those of a trained observer.

Hair, Eyes, and Complexion.—Here we reach somewhat more definite results, based upon nearly 120,000 measurements I have collected in the table on the following page.

From these figures we see that though Jews are darker both in eyes and in hair than any of the other nationalities, they have about 21 per cent. blue-eyed and about 29 per cent. blonde-haired, and have thrice as many red-haired individuals as either Poles, Russians, or Austrians, and half as many again as Germans. It may be remarked that anthropologists are inclined to consider dark-haired races better fitted for the struggle for existence (F. Galton, "Record," p. 8; Schimmer, "Erhebungen," p. xxiv). The significance of these results as regards the question of purity of race will concern us later. Meanwhile I would supplement the above list by one compiled by me from Dr. Beddoe's results in his paper "On the Physical Characteristics of the Jewish Race" (Ethnol. Trans., 1869).

These were the first published on the subject, and differ slightly in arrangement from the above, which mostly follow Virchow's epoch-making investigations into this subject. Dr. Beddoe examined 665 individuals in different places, and by taking the Jews of Turkey, Rome, and the Sephardic congregation

Place, Number, and Authority.	Race.	Eyes.			Hair.			Skin.	
		Blue.	Grey.	Brown.	Blonde.	Brown.	Black.	Red.	White.
I. <i>Austria</i> (59,808 Jews, Schimmer, "Erhebungen," 1885)	{ Jews .. { Austrians	23.5 34.3	30.6 33.4	45.9 32.3	27.0 44.9	55.4 49.2	16.9 5.6	0.6 0.2	65.4 52.3
II. <i>Prussia</i> (c. 50,000, Virchow, "Zeit. f. Ethn.," 1876, p. 17)	{ Jews .. { Prussians..	18.7 43.0	28.8 32.7	53.5 24.3	32.4 72.2	55.5 26.1	10.1 1.2	0.5 0.3	77.7 93.5
III. <i>Bavaria</i> (7,054, Mayr, "Zeit. Bay. Stat.," 1875)	{ Jews .. { Bavarians	20 29	31 37	49 34	30 54	50 41	20 5	.. ..	70 85
IV. <i>Buda Pesth</i> (3,141, Korösi, "Ann. de Demog.," I, p. 137)	{ Jews .. { Hungarians { Germans..	18.3 29.0 29.3	24.2 25.9 30.6	57.5 45.1 40.1	23.7 50.7 55.4	57.0 45.4 38.9	19.3 3.7 5.7	.. .. ..	67.3 77.9 78.4
V. <i>Württemberg</i> (1,995 Frass, "Centralbl. Anthropol.," 1876, No. 12)	{ Jews .. { Württem.	20 32	28 33	52 35	31.5 61.8	57.0 36.0	10.6 1.6	0.9 0.6	....
VI. <i>Galicia</i> (826, Majer and Kopernicki, <i>loc. cit.</i> , pp. 88, 180) ²	{ Jews .. { Poles .. { Ruthenians	23.0 34.0 31.5	24.1 48.9 19.6	52.9 29.1 33.7	23.2 45.0 31.9	53.7 49.5 54.2	13.1 5.5 13.9	4.5 1.2 1.4	66.4 39.9 59.9

¹ Virchow does not give number of Jewish children, but as there were 4,127,766 in all, and Jews are 1.3 per cent. in Prussia and have more children, they cannot have been much less than 50,000.

² Adding blue to green and chestnut to brown to make the results uniform.

These results must be taken with the restriction that, as the Anthropometric Committee of the British Association point out (Report, 1883), the hair and eyes of schoolboys grow darker as they grow older.

of London as Sephardim, I am enabled to give some data for distinguishing between Sephardim and Ashkenazim as follows:—

Eyes.				Hair.				
	Light.	Neutral.	Dark.	Red.	Fair.	Brown.	Dark.	Black.
290 Seph.	20	12	68	3.5	3.5	15.7	40.0	37.3
375 Ashk.	27	14	59	1.1	2.6	17.0	45.6	32.7

The differences are not very striking, with one remarkable exception: Sephardim have three times as many red-haired as Ashkenazim.

Colour-blindness may be taken here, though perhaps belonging to morbidity. The following table exhibits the chief results hitherto obtained, which are practically decisive of Jewish inferiority in this respect, due doubtless to the greater poverty of Jews and their long confinement in towns:—

No.	Place.	Jews.	Others.	Authority.
814	Breslau ..	4.1	2.1	Cohn, "Centblt. Augenkunde," 1873, p. 97.
949	London (boys)	4.9	3.5	"Trans. Ophth. Soc.," I, p. 198.
730	" (girls)	3.1	0.4	<i>Ibid.</i>
500	Frankfort ..	1.8	2.9	Carl, "Untersuchungen," 1881.
500	Italy (boys) ..	2.9	2.7	Ottolenghi, "Gaz. Cliniche," 1883.
420	" (girls) ..	0.0	..	<i>Id.</i> , "Vessillo Israel," Sept., 1884.

Ottolenghi, from whom I take Cohn's and Carl's results, observed that three out of his thirteen cases were cousins, two of whom had a maternal grandmother also colour-blind. The Ophthalmological Society's results were obtained from the poorly nurtured children of the Jews' Free Schools, Bell Lane and Greek Street.¹

Nose.—This feature is the one usually regarded as distinctive of the Jew, and is also considered anthropologically important (Topinard, "Anthropology," p. 358). I therefore give the few data I can gather as to its length and shape. Weisbach's nineteen Jews vied with the Patagonians in possessing the longest nose (71 mm.) of all the nineteen races examined by him (Andree, "Volkskunde," pp. 32, 33), while they had at the same time the narrowest noses (34 mm.). Blechmann's century of Jews, on the other hand, had an average length of 51.9 mm., and breadth

¹ Query: may the colour-blindness of Jewish girls account to any extent for their choice of primary colours for dresses?

35.9, giving a nasal index of 69.6 ("Anthropologie," p. 33). As regards shape, his results are—2 short, 10 broad, 2 *retroussé*, 4 flat, and 84 straight, while Majer and Kopernicki give the following table (p. 187):—

		Poles.	Ruthenians.	Jews (742 in number).
Curved-aquiline	..	6.4	6.1	30.9
Straight	..	67.4	68.1	59.6
Flat	..	7.5	11.2	2.9
<i>Retroussé</i>	..	18.7	14.6	6.6

But that one saw it "in print," most persons would doubt the possibility of meeting Jews with noses "tiptilted like a lily."¹

Lips are another characteristic feature of Jews, but the only measurements I know of are those of Blechmann, who gives 5.4 thin, 31 moderately thick, and 17 thick ("Anthrop.," *loc. cit.*), a result rather opposed to one's preconceived notions about the thick lips of Jews.

Expression.—Turning from the separate features of the Jewish face to that combination of them which we term expression, it might seem impossible to give anything more than subjective impressions. Thanks, however, to Mr. Galton, science has been enabled to call in the aid of photography to obtain those averages which no measurements can supply. Some two years ago I applied to him to know whether he would assist me in obtaining composites of Jewish faces, and to this he was kind enough to consent. A number of photographs of Jewish boys were taken at the Jews' Free School, through the kindness of Mr. Angel, the well-known head-master of that admirable institution, and Mr. Galton was good enough to compound them in the way familiar to all here (*vide* F. Galton, "Inquiries into Human Faculty," App. B, III). Plates I and II contain a number of the results, together with the individual components from which they were compounded.² It will be observed that in the composite (C) containing the largest number of components (thirteen) the face has distinctly what is termed a Jewish expression, though it is full-faced. It follows that the peculiar expression known as Jewish cannot be due to the droop of the nose alone. The full lips, the heavy eyelids, and large irides have much to do with it. So far as the nose is concerned it is the flexibility of the *alæ*, or wings

¹ Harim (1 Chron. xxiv, 8) and Harumaph (Neh. iii, 10) were flat-nosed if their names do not belie them. Roven Salomo, a Jew of 1347, figured in "Revue d. Études Juives," No. 12, has a distinctly concave nose.

² See explanation at end of paper, p. 53.

of the nostrils, that are distinctive rather than its curvature.¹ I may add that an artist friend has pointed out to me that a figure 6 with a long tail gives the best caricature outline of the Jewish nose, and here again the importance of the *alæ* is manifest. In the profile co-composite (G) containing ten Jewish noses rolled into one, it will be noticed that the outline is blurred, *i.e.*, not typical, while the accentuation of the *alæ* is clearly marked, and lips and chin are tolerably distinctive. The actual expression in the various composites varies to some degree, and it is a doubtful point whether the peculiar intensity of the Jewish gaze (well exhibited in composite D) is not due to long residence in ghetti and the accompanying social isolation. I fancy at least that it disappears to a large extent in Jews who pass very much of their life among Gentiles. At the same time something like it may be traced throughout the history of Art, and I may refer to one of the earliest representations of Jews in Art, the Assyrian *bas relief* of the captive Jews of Lachish (B.C. 701) being taken before Sennacherib (see Sayce, "Fresh Light," p. 145). The subject is undoubted and well known, and the persistency of the Jewish type for the last 2,600 years is conclusively proved by it. But a careful examination shows that the Assyrian artist gives the Jewish captives very much the same type of face as their captors, the chief difference consisting in the fact that the Jews have the beard cut, the usual sign of captivity. The female slaves behind Sennacherib's throne might have been taken from the synagogue galleries of to-day, and yet we have no warrant that they are Jewesses. The *relief* then shows not only the persistency of the Jewish type, but its practical identity with the ordinary Semitic type of those days. I possess a photograph which shows the same at the present day: I bought it thinking it to be a collection of Eastern Jews, and found out afterwards that it was a *séance* of Syriac Mohammedans.²

III.—*Historical Data.*

And this leads me to the main subject of this paper—the question of the purity of the Jewish race. M. Renan, who re-

¹ Query: may this aid histrionic expression? George Eliot gives the Alcharisi, "a play of the brow and nostril which made a tacit language" ("Dan. Deronda," p. 469).

² Before leaving the anthropometric data I should have referred to the earlier age at which menstruation appears among Jewesses. Raciborski, "Traité de la Menstruation," 1869, p. 630, puts it at 14 years 3 months and 25 days, which would place them earliest in Topinard's scale ("Anthrop.," p. 366), except for Southern Asia. Cf., too, Floss, "Das Weib," i, 148. The matter requires further investigation.

cently expressed his regret that he did not give his youth to science, as he would have certainly anticipated Darwin, has made his first incursion into scientific fields in an examination of this question ("Le Judaïsme comme race et comme religion," Paris, 1883). His results are mainly against the racial purity of the Jews, and in this conclusion he has been followed by M. Isidore Loeb in an excellent article, *Juifs*, in Saint Martin's "Dictionnaire de Géographie," and we have just heard how Dr. Neubauer upholds the opinion of his illustrious friend. Notwithstanding the authority which must attach to such names when dealing with a matter mainly historical, I hope to show that the last word has not been said on the subject, and that anthropological science in particular has certain considerations to suggest which must give us pause before accepting the conclusions at which these authorities have arrived. The whole question is very complicated, and I will attempt to give the strongest arguments on both sides, beginning with those unfavourable to the purity.

(1) *Proselytism*.—The question of the former intermarriage of Jews and Gentiles resolves itself into that of proselytism, since Jewish law does not recognise *matrimonium* with a person of another belief.¹ But in the early days of Israel this was not the case. After the conquest of Canaan, the Israelites entered into frequent connubial relations with the conquered. We may perhaps see a reference to the beginning of this process² in the curious tradition about the Judge (or Baron) Ibzan of Bethlehem who, we learn (Jud. xii, 9), "had thirty sons and thirty daughters: the latter he sent abroad and took in thirty daughters from abroad for his sons." But such intermarriage with the daughters of Canaan are of little significance from the anthropological point of view.³ For there was no such diversity of type among the Semites as among the Aryans. The Semitic languages differ from one another only as the Romance tongues do, and do not show such wide differences as those between Russian and Welsh. We have already seen that Jews and Assyrians of the eighth century B.C. were of practically the same type. The distinction between Jews and other Semites was religious, not racial. The strenuous prohibition of Ezra against marriage with strange women was directed against idolatry rather than exogamy. For even before this date we

¹ *Vide* Frankel, "Grundlinien d. mos. Eherechts," p. 22, and Ritter, "Philo," p. 71. Philo makes the prohibition even stronger, taking Deut. vii, 3, as binding with regard to all nations.

² Query: was this a case of exogamy with other Israelite totem-clans? (*cf. supra*, p. 29, note.)

³ Jewish tradition recognised Ammonites, Moabites, and Idumeans to be of same race (*cf.* Wellhausen, art. *Israel*, "Ency. Brit.," "History," p. 429).

find traces of proselytism in the Bible.¹ The second Isaiah (lvi, 6) speaks of "the sons of the stranger who join themselves under the Lord." The late book of Esther also refers to proselytes (viii, 17; ix, 27), while three of the later Psalms (Ps. cxvii, cxviii, cxxxv), possibly of the second century B.C., divide Jews into three classes—"the House of Israel," "the House of Aaron," and "those who fear the Lord." The last became the technical expression for proselytes among Hellenistic Jews (Acts, *passim*). So numerous had these proselytes become that they were classified according to the motives which led to their conversion. There were Proselytes of the Lion—from fear; Proselytes of the King's table—from ambition; Proselytes for a wife; and there was a grand division made between Proselytes of the Gate, who did not observe the most stringent of the Mosaic regulations, and Proselytes of Righteousness, who were even as Jews in all that concerned the Mosaic precepts. Now it is only with the latter class that we are concerned, since only these had the full *jus connubii* with persons of Jewish race and religion. It is therefore of critical importance to know whether any of the many proselytes mentioned by Josephus, the New Testament, and the Talmud were proselytes of the Gate or of Righteousness, the latter being the only ones that affect the main question. The Jews of Antioch only made the many inhabitants proselytes "after a fashion" (τὸ πρόσω τινί, "Wars," VII, iii, 3), *i.e.*, they were only Proselytes of the Gate. I am surprised to find a scholar like M. Renan omitting this cardinal restriction, which tells dead against his position.² St. Paul, in his addresses to the congregations at Antioch (Acts xvii, 16, 26), Thessalonica (xvii, 4), Athens (*id.*, 17), carefully distinguishes Jews and proselytes. And in a significant passage ("Wars," VI, ix, 3), the bearing of which has been overlooked by M. Renan and his followers, Josephus mentions that the foreigners who came to worship at Jerusalem

¹ For many of the following facts I am indebted to J. Bernays' masterly essay, "Die Gottesfürchtigen bei Juvenal," in the Mommsen presentation volume, and now reprinted in his "Gesam. Schrift," ii, 71-80 (*cf.* Mayor's "Notes on Juvenal," xiv, 99, *et seq.*).

² M. Renan translates *Ayant amené à leur culte un grand nombre d'Hellènes ils en firent une partie de leur communauté* ("Le Judaïsme, &c.," p. 72). He should have added to the last clause some such phrase as *tant bien que mal*. Similarly in the translation of C. Apion ii, 39, M. Renan (p. 15) has not quite preserved the force of the Greek πολλά, which shows that the Greeks and barbarians referred to did not observe all the Jewish dietary laws, and were therefore not full proselytes. As a matter of fact they were not proselytes at all, nor does Josephus say they were. He is referring to the well-known fact that many other nations have customs similar to the Jews, *e.g.*, the Sabbath or dietary laws and with his usual boastfulness pretends that they learnt them from the Jewish law. Only the fact that M. Renan intended his discourse for a conversation (p. 1) can excuse these slips.

were not allowed to share the Passover meal, *i.e.*, were only proselytes of the Gate. When Josephus calls Nero's wife, Poppæa, a proselyte (*θεοσέβης*), this can only mean that she was interested in Jewish doctrines: it cannot imply any adherence to Jewish customs. It was to this very class of proselytes of the Gate that Paul appealed, and founded Christianity by granting full religious rights to them. The triumph of Christianity meant, therefore, that this rapidly growing class were drawn off from Judaism to the new sect before they had been fully incorporated with the older body. After the wars with the Romans Jewish propagandism would have but little scope, as, indeed, M. Renan allows. So that for the existence of full proselytes during this period we have only the evidence of Juvenal, Dio Cassius, and Tacitus, who might easily be struck by a few examples of what they considered a barbarous custom.¹ The last says that Jews never intermarried ("Hist." v. 5).

So soon as Christianity became the State religion, proselytism would become dangerous. Severe penalties were placed by the laws against intermarriage of Jew and Christian, which was placed on the same footing as adultery (390 A.D., "Cod. Theod.," LV, ii).² The Councils of the Church included similar injunctions as a matter of course, one set of canons following the preceding.³ The severity of the sentence is often enough to show how rarely the laws were transgressed. This, however, if any, was the time when any intermarriage could have taken place, owing to the kindly relations of Jews and Christians. Unfortunately, it is also the time (300 A.D.—800 A.D.) of which we know least about Jews. Before, however, we reach Charlemagne's epoch two instances of proselytism on a large scale occurred in the countries beyond civilisation, and these have naturally been emphasised by M. Renan and his followers. In South Russia the kingdom of the Cozars,⁴ situated midway between the Patriarchate of Constantinople and the Emirate of Bagdad, ingeniously evaded the necessity of acknowledging either of these powers by formally adopting Judaism, which both had to tolerate. The adhesion was scarcely more than

¹ See M. Derenbourg's temperate and judicious treatment of the question, "Essai," chap. xiv. With regard to converts at the Imperial courts (Graetz, "Die jüd. Proselyten," 1884), it is a great question whether for "Jewish" we ought not to read "Christian." I see an instance of this in Epict., "Disc.," II, ix.

² Constantine appointed the punishment of death against such marriages ("Cod. Theod.," xvi, 6).

³ Elvira (320), xvi; Chalcedonia (388), xv; Third Orleans (538); Maçon (581); Third Toledo (589), xiv; Fourth Toledo (633), lxiii. Basnage, "Histoire," ix, 409-414.

⁴ St. Martin, "Les Khazars," 1851. Harkavy, in "Russ. Revue," 1876. For Arabic and Hebrew sources, see Carmoly, "Itinéraires de Sainte Terre," 1847.

formal, and there is little evidence of any great intermixture of pure Jews with these Cozars, except by the few learned Jews who taught them their creed.¹ These seem to have been of the Karaite sect, and we find still the headcentre of the Karaites in the Crimea, where the Cozars ultimately concentrated. All accounts represent the Karaites as perfectly un-Jewish in appearance, and I would venture to apply to them Napoleon's witticism; "*Grattez le Karaïte et vous trouverez le Khazar.*"² The Cozars were crushed in the ninth century, while the Polish Jews, who are supposed to show signs of intermixture with Cozars, came into that kingdom from Germany long afterwards. Similarly, a somewhat earlier conversion of Arab tribes in Yemen has only left traces on contemporary Judaism in the Falashas, to whom Rohlfs also denies Jewish features ("*Abessinien*," 1884, p. 273). Karaites and Falashas, with the Daggatouns of the Sahara and the Beni-Israel of Bombay, are the only Jews of to-day who display alien blood, and these form only one per cent. of Israel, and never intermarry with Jews.

After the age of Charlemagne no great intermixture of Jews and Aryans can be discerned. As Europe became Christendom, the Church isolated the Jews more and more by cutting them off from the trade guilds, originally religious, and from all civil rights: they became the King's chattels in a literal sense. The mere fact of their being cooped up in ghetti would be enough to put a bar in the way of frequent intercourse, and it was the true insight of an artist that made Sir Walter Scott regard a marriage between Rebecca and Ivanhoe as rendered impossible by the circumstances of the Middle Ages.³

To sum up this short sketch of Jewish proselytism, this undoubtedly existed before the spread of Christianity, but only or mainly so far as Proselytes of the Gate were concerned, who could not marry with Jews, and these were soon intercepted by the Church, which afterwards took most stringent measures to prevent any relapse. I would add that the case is somewhat different as regards slaves, and it is possible that some infusion of Aryan blood came in through this means, but the amount

¹ There were only 4,000 Jewish Cozars in all (Fraehn, "*De Chazaris*," 1822, p. 13). But to the contrary effect see Masudi, "*Meadows of Gold*," p. 407. The letters interchanged between the Khan of the Cozars and R. Hisdai of Spain, serve to show the rare intercourse of the Cozars with the rest of the Jewish world.

² M. Renan makes much of a Karaite being named Toktamish. This might be explained by his being a Cozar. But Jews have always freely adopted local names (Zunz, "*Namen der Juden*"). Cf. Talm. Jer., Gittin i, 55 b.

³ Though the name *ghetto* is derived from the foundry at Venice, in which Jews were cooped up in 1510, the thing existed as early as 1090 at Salerno, if not earlier at Constantinople (Graetz, v, 37), or even in Rome and Alexandria.

would be necessarily small; and the children, according to Jewish law, followed the *status* of the mother.

The above estimate of Jewish proselytism is substantiated by all the evidence I can gather on the subject. Thus while of the 200 doctors of the Mishna up to 200 A.D., no less than eight¹ were of alien blood (though that Semitic), of the 1,500 doctors of the Gemara, from 200 to 600 A.D., I can only find one (Mari bar Rahel)² who seems to have been descended from a proselyte. This seems to indicate the dying out of proselytism after Christianity, though the change of scene from Palestine to Babylon may have also something to do with it. Rava and Nachman, two Babylonian Rabbis of the fourth century, in discussing a certain law, dismiss the case of a proselyte as it is so seldom (Gittin, 85 a). So, too, on looking through some eight hundred inscriptions, I found two female proselytes³ in the classical ones (114 in number), but not a single one on tombstones of later date.⁴ The colossal erudition of Wolfius ("Biblioth. Hebr.," II and IV) could only gather together forty-four names of proselytes during the Middle Ages, and with my utmost diligence I have only been able to add sixteen to these, five of whom died as martyrs for their new faith.⁵ As regards Moslem countries I cannot speak with such confidence. Moses de Coucy is said by Basnage to have rebuked the Jews of Spain for marrying Moorish women. But such intermarriage would only affect Sephardim, who form only 6 per cent. of the Jews of to-day, and would be for the most part with Semitic blood. The boasted tolerance of Islam⁶ only lasted down to 1040, and afterwards there was but little difference in the treatment Jews received under the Crescent and the Cross.

And even if history showed a greater infusion of Aryan blood than the above estimate would allow, the effect of this on Jewish characteristics would tend to be minimised by certain anthropological principles which have been completely overlooked by M. Renan and followers. I have already referred to the comparative infertility of mixed marriages (the Talmud

¹ Some of these were very distinguished, e.g. : Akiba, the Targumist Onkelos, R. Meir, Schemajah, and Abtalion; three others are mentioned by Derenbourg, p. 223 n. (Cf. Brüll, "Misnahme von heidnischer Abkunft," in his "Jahrbuch," ii.)

² I owe this name to the erudition of my friend Mr. S. Schechter.

³ *Beruria*, re-named *Sara*, Orelli, No. 2522, and *Soteria*, who is termed *mater synagogæ*, Id. No. 2523, both at Rome. A third given by Bernays, ii, 80, was not a full proselyte ("metuenti").

⁴ At Venice (Berliner), Toledo (Zunz), Paris (Longperier), Amsterdam (Castro), and other places given by Wolf, Zunz, and others.

⁵ Four at Wissemburg, 1264 (Neubauer, "Rev. Etudes Juives," No. 7), and one at Augsburg the same year (Zunz, "Literaturgeschichte," p. 350).

⁶ One of Maimonides' responses is to a proselyte from Islam (Frankel, "Entwurf," p. 39).

says they only produce girls, Nidda 13 *b*, Jebam. 62 *a*), and I would now point out its consequences. Taking the most extreme case imaginable, let us suppose that as many as one-tenth of all Jews and Jewesses married outside the pale. Estimating the pure Jewish population to increase uniformly half as much again each generation of thirty years, I suppose the mixed marriage to result in only one surviving child, so that the next generation only replaces its Jewish parents. Then gradually raising the fertility as the offspring marry with Jews, but never making it equal to pure Jewish marriages, I find that in six generations, or two hundred years, the original ten per cent. has sunk to little over two.

And even this small percentage would show but little traces of its alien origin, owing to another anthropological principle to which I now proceed to call attention, I believe for the first time. On examining some cases of mixed marriages, I was struck by the uniformity with which the children resembled the Jewish side, and I was led to make special inquiry into the matter, with the following results:—Of 84 such marriages examined by me, 9 were sterile; of 35 I could obtain no definite results; 22 showed Jewish prepotency; 13 Gentile, and 5 mixed. Now when it is remembered that if mixed marriages occurred in the Middle Ages the offspring must have married again within the Jewish pale, it is hardly likely that the Gentile blood would persist throughout the ages, even if it were prepotent, and if the above rather rough results have any validity the prepotency is rather on the Jewish side, and at any rate there seems very little tendency to real intermixture (only in five families out of forty-nine).¹ Another fact pointing in the same direction is the interesting point that in families into which there has been an infusion of Jewish blood this tends to appear in a marked and intensely Jewish cast of features and expression. I know of four instances of this myself, and Mr. Galton tells me that a couple occur in the family records he has been collecting. Now as reversion is mostly towards the side of greater prepotency, this curious fact confirms our conclusion as to the superior prepotency of Jewish blood.

(2) But it will be asked, and has been asked, "How will you account for the wide divergences from the Jewish type of skull, nose, eyes, hair, &c., which are shown in the statistics on these points given above, and must indeed be a matter of common observation?" M. Renan has decided this point literally

¹ The chance of a child resembling any ancestor might perhaps be roughly expressed by the reciprocal of its figure on Mr. Galton's system, "Record," p. 3; "Nature," Sept. 6th, 1883. Thus the chance of my resembling my maternal great-grandfather is $\frac{1}{12}$. Cf., too, Galton, "Her. Gen.," p. 327 *n*.

ex cathedra: seated in his chair at the Bibliothèque Nationale, he has observed the Jewish *savants* who have applied for his aid, and concluded that there are several types of Jews which are absolutely irreducible to one another ("Le Judaïsme," &c., p. 25). But the question of types is a question of averages, and you cannot so easily decide upon the non-existence of a type by pointing to a few divergences from it. An organism is not a manufactured article turned out by machinery, but may modify itself and be modified by the environment, introducing a principle of variability which causes the type to develop. An organic type therefore exists not where there is no variation, but where the variations follow the law of error, and where the modulus of variation is tolerably constant. This is in the main the case with most of the anthropological measurements I have laid before the meeting, and it follows that the variations, though they may be due to intermixture, may also be merely normal divergences from the standard.

It seems hardest to accept this result with regard to red hair, which we have seen to be exceptionally prevalent among Jews. Yet, as a matter of fact, red hair seems to be only a natural complement to black, so that for anthropological purposes we might even term red "light black." The colour of the hair is determined by the presence and amount of two pigments: when the darker is absent from any physiological cause red hair is the consequence, just as when both are absent albinism appears (Topinard, "Elements d'Anthropologie," 1885, p. 323). Now just as albinos occur among all races, including negroes, so does red hair. Eusebius declared that Adam was rufous, not only from the etymology of the name, but because red-haired men occurred among all the races of mankind (Topinard, *loc. cit.*). That "erythrism" among Jews is not due to intermixture, but probably to defective nutrition, is shown in the first place by its occurring among Jews of Africa and the East. It has been observed in Algiers, Tunis, Bosnia, Constantinople, Smyrna, Syria, Persia, and Bokhara.¹ Secondly, from my analysis of Dr. Beddoe's results, it will be observed that red hair occurs among Sephardim to a greater extent than among Ashkenazim, and it has never been contended that the Sephardim have mixed much with any race markedly rufous.² And, thirdly, when it does occur among Ashkenazim of North Europe, it is found more among Jews than in

¹ Dr. Beddoe has paid particular attention to this point; see his paper previously cited, pp. 12-19 of the reprint and table at end. Andree, "Zur Volks-," p. 35, repeats most of this, but is mistaken in saying that rufous Jews have been observed at Cochín. I have seen somewhere that the red-haired Jews of Palestine claim to be Benjamites.

² A certain amount of erythrism was, however, introduced into Spain by the Goths (*cf.* Beddoe, *loc. cit.*, p. 24).

the indigenous population, whereas if it were due to intermixture we should expect to find the amount of erythrism among Jews intermediate between that of the natives among whom they dwell and the supposed original black hair of the Semites. Indeed, but for the abundant presence of red hair among Scotchmen it might be more open to explain the origin of red hair among Europeans as due to an infusion of Jewish blood than to account for it among Jews by assuming intermixture with Aryans.

The argument from red hair being thus dismissed with costs, the existence of blue eyes among Jews in relatively large proportions need not be regarded as overwhelming proof of intermixture. As is well known, all eyes are blue at birth, *i.e.*, we see through to the back of the baby's iris, and if no pigment cells are deposited in the iris the eyes remain blue to the end of life (Topinard, *loc. cit.*). Thus blue eyes, as well as red hair, are a kind of minor albinism, and may result from defective nutrition or other physiological causes like red hair. That this is probably the real cause of its occurrence among Jews is confirmed by the fact that we find blue eyes among Asiatic as well as European Jews (*cf.* Beddoe, *loc. cit.*).

It may be convenient that I should here add what little evidence I have been able to collect as to the appearance of Jews in the past. It is a question whether Esau (Edom) was regarded as having red hair (Gen. xxv, 25), because that colour was frequent among the Idumæans. Dr. Beddoe suggests that red hair among Jews may have been due to intermixture with Idumæans after they became proselytes; but the existence of red hair among them, their proselytism,¹ and their intermarrying with Jews are all more or less conjectural. In the regulations about leprosy (Lev. xiii) it seems to be implied that the hair was black, or at any rate dark. The Shunamite says, "I am black [swarthy], . . . for the sun has browned me" (Cant. i, 5), but on the other hand speaks of the "raven locks" of her beloved (*ibid.*, v, 11). If we could trust to the etymologies of proper names the five persons bearing the names Harim and Harumaph in the Bible had flat noses. The first definite information I can find is contained in a saying of a Mishnic Rabbi, R. Ishmael (about 120 A.D.), who says (Neg. ii, 1), "The sons of Israel are like boxwood, neither black nor white, but between the two," *i.e.*, of olive complexion. Both Mishna and Gemara seem to use "black" (*shachar*, *vide* Buxtorf, *sub voce*, col. 2372) as synonymous both with "hair" and with "youth."² The

¹ Derenbourg ("Essai," p. 227) says that the proselytism of the Idumæans was more political than religious.

² It is to be remarked, however, that the chief passage (Pirke Aboth iii, 12) on which this identification is based is not of certain interpretation. See Taylor, p. 63, Geiger ("Nachg. Schr.," iv, p. 338), and Strack *in locum*.

Targum or Chaldaic paraphrase on 1 Sam. xvi, 12, makes David "red-haired" instead of "ruddy," and the mistranslation has passed into Luther's version. This shows at least that the Jews of the time when the Targum was written (about 600 A.D.) were not averse to regarding the typical Jewish king as rufous. The light hair given to the Christ in early Art,¹ the traditional red hair attributed to Judas Iscariot, as well as the golden locks of Mary Magdalene, require further investigation. Later on I find Jehuda Halevi (c. 1140 A.D.) speaking of the golden hair of his beloved,² a Spanish Jew, Roven Salomo, 1349 A.D., with light brown hair,³ and Rembrandt's Rabbi in the National Gallery has a red beard. All these indications serve to show that red hair at least is no late importation into Jewish anthropology.⁴ Evidence about blue eyes is more difficult to obtain, as it is still a doubtful point among scholars whether either Bible or Talmud has any word to express blue.

Altogether, then, the two chief arguments hitherto urged to prove intermixture—which may be roughly summarised as proselytism and red hair—cannot be said to be decisive, while there are other more positive arguments tending to show the comparative purity of the Jewish race, and to these I now turn.

I. The first and perhaps chief of these is the existence of a class of Jews who are not permitted by Jewish law to marry even full proselytes. These are the priests, or *Cohanim*, the Beni Aaron or sons of Aaron. We have already seen that at the time of the Maccabees, Jews were addressed in the Psalms under three appellatives—Israelites, Aaronites, and Proselytes. The sons of Aaron could only intermarry with the daughters of Aaron or of Israel. The discussion about the comparative purity of Babylon and the surrounding districts which gave rise to the saying, "Babylon is sound, Mesene dead, Media ill, and Elam on its last legs" (Kidd. 71 a), was probably concerned with the purity of Cohanite marriages, for which any perceptible amount of "paste" or intermixture was considered as objectionable.⁵ The

¹ See "Dict. Christ. Antiq.," art. "Christ, Early Representations of," and authorities there quoted.

² Geiger, "Divan," p. 123. The poet uses, I regret to observe, the same words as are used in the Bible to represent the discoloration of the hair on the leprous spot (Lev. xiii, 30).

³ Figured in "Rev. d. Et. Juives," No. 12.

⁴ It is worth while remarking that the Cozars, according to Ibn Foslân, had black hair (cf. Lagneau, "Denombrement," p. 49, note).

⁵ Upon the difficult question of *Issah*, or "paste," there are two papers in Graetz, "Monatsft.," one by Graetz himself, "Illegitime Mischehen in Judäa," 1879, pp. 481-508, and one by F. Rosenthal, "Ueber Issah," 1881, pp. 38-48, 713-723, 207-217. Cf., too, Graetz "Das Königreich Mesene," pp. 31-33. I fancy that the custom of consanguineous marriages may be connected with the desire to preserve purity of descent; cf. R. Meir's recommendation (Kidd. 71 a, "Monats," 1879, p. 507), and Tobit, who marries of his own kindred (i, 9).

saying and similar ones cannot be pressed to prove any wide admixture, and only serve to show how carefully the purity of Cohanite marriages was preserved, and the notice taken of any deviations from endogamy. It will be of interest to ascertain the number of these Cohanim who are themselves pure, and must have set an example of exclusiveness to their fellow-Jews. In the return under Nehemiah, the four families of priests numbered 4,289, out of 49,942 (Neh. vii, 39-42, 66, 67). In two lists of martyrs killed at Nurnberg in the years 1298 and 1349, the Cohanim number 91 out of 1,300, almost exactly the same proportion as in Ezra's time, though one may expect to find the Cohanim more ready to suffer martyrdom than other Jews.¹ In Jewish ritual it is customary that the first "called up" to the reading of the Law should be a Cohen, and there are only five on ordinary days and eight on Sabbaths and festivals,² thus indicating that a large supply of Cohanim was regarded as usual. Among the two hundred inscriptions of the Venice "House of Life" or burial ground collected by Dr. Berliner ("Heb. Grab-schriften," 1881), there are thirteen Cohens (6.5 per cent.), though here again it is probable that a greater proportion of these would be honoured with tombstones. The descendants of such Cohanim live and flourish at the present day, but it is impossible to determine their number, as their civil surname may not be Cohen. Thus Dr. N. M. Adler, the present Chief Rabbi of England, is a Cohen, though it is not necessary for a Jew to be a Cohen in order to be a minister. In lists of 4,720 English Jews I found the Cohens to form 3 per cent., while in a Continental list of 4,600 they were but 2.3 (my "Studies," p. 4). The latter is probably somewhat misleading,³ as in a list of 335 Jewish celebrities in all European lands, culled from dictionaries of contemporary biography, the Cohens number eleven, or very nearly 4 per cent., while I know of at least five of the remainder who might call themselves Cohen. Altogether I am inclined to think that there are about 5 per cent. of Cohanim among Jews, and these cannot have had any direct mixture with the outer world.⁴

But though they may never marry a proselyte, they may

¹ I calculate these from the lists given by Dr. Neubauer, "*Memorbuch de Mayence*," *Revue*, No. 7, p. 10; and the Rev. W. Lowe, "*Memorbuch of Nurnberg*," 1880.

² This and the priestly benediction are the only two functions now performed by Cohanim; it would be interesting to learn the origin of the position of the fingers in the latter function, which are spread so as to leave a gap between the first and the last two.

³ Lippe's "*Bibliog. Lexicon*" contains a large proportion of names of ministers, and small congregations object to a Cohen as a minister, as he must not approach a dead body (Lev. xxi, 1).

⁴ There are said to be less Cohanim among Sephardim.

marry the daughters of proselytes, and thus introduce alien blood. R. Jose was for allowing them even to marry proselytes, while R. Jehuda declared against their marriage with any child of a proselyte: the law, however, went with the opinion of R. Eleasar ben Jacob in the early part of the second century, who permitted marriage between a priest and a woman one of whose parents had been a proselyte (Mishna, Kidd. iv, 7). Owing to this decision, later authorities doubted whether there were any true Cohanim, *e.g.*, Isaac ben Shesheth, of the thirteenth century, while R. Samuel b. Modena, of the sixteenth, even allowed a Cohen to transgress the Law on this ground (Löw, "Lebensalter," p. 114, and notes p. 391). There is also an amusing tradition told in the Talmud, aspersing the purity of Cohanite descent. It is said of Pashur ben Immer (in whom two of the four Cohanite branches appear to be conjoined), that he had four hundred female slaves, and that if you find an impudent Cohen nowadays, he is certainly descended from Pashur ben Immer (Kidd. 70, *b.*)¹ I may add that even at the present day Cohens have the reputation of being hotter-tempered than other Jews. All these indications may modify any claim for absolute purity among Cohanim; and the fact that they do not differ perceptibly from other Jews may serve as an argument either for the general purity of the race, or, on the other hand, for the mixed origin of the Cohens, which would be very difficult to prove to any large extent.

II. Another point on which I would lay stress, if the suggestion I make is borne out by facts, is with regard to the comparatively small variation of type among *Jewesses* as compared with Jews. I seem to observe that Jewesses have more uniformly what we term the Jewish face than Jews have. It is a universal law of animal life that, owing to sexual selection and other causes, the males of a species vary considerably more than the females. And, conversely, where we find the females varying less than the males we may conjecture that we have a case of true species. Even more in Jewesses than in Jews, we can see that cast of face in which the racial so dominates the individual that whereas of other countenances we say, "That is a kind, a sad, a cruel, or a tender face," of this our first thought is, "That is a Jewish face." That the difference should be almost innately perceived by Jews who have for nearly two thousand years associated all that is kindly with this type would be natural. But the difference is almost as readily discerned by Gentiles, and even the negroes of Surinam, when they see a European and a Jew approach, do not say, "Here are two whites," but "Here is a white and a Jew" (Duttenhofer ap. Andree, "Volks.," p. 38).

¹ I owe this reference to the kindness of my friend Mr. Schechter.

I lay stress upon this point of expression because it is after all the chief external trait that can be fixed upon as typically Jewish. We have the evidence of the monuments for its persistence through the ages, and the scientific evidence of its typical character in the "composites" produced by Mr. Galton's process, and given with this paper. Mr. Galton agrees with me that he has been more successful in producing definite types with Jewish boys than with any other of his subjects (*cf.* the plate prefixed to his "Inquiries into Human Faculty"). It must be allowed, however, that there is great force in the argument which would attribute the Jewish expression to the influence of isolation, so that we might define it as *Semitic features with ghetto expression*. But against this reasoning may be urged the early appearance of the Jewish type in the Assyrian monuments, and further, the fact of its appearing among the results of mixed marriages, where it must be racial. I have already pointed out what I consider to be the part of the Jewish expression due to isolation—the intensity of the gaze shown so well in the adult "composite" D, a fitting expression of a severe struggle for existence.

The earlier period at which "the custom of woman" (Gen. xxxi, 35) appears among Jewesses (*supra*, p. 39, note) is another trait which, if substantiated by wider induction, must be regarded as distinctly racial. If Darwin's explanation of its origin ("Descent," 1st edit., I, p. 212) be correct, it must have preserved its periodicity for an incalculable time, and it may be surmised that any other temporal relation, such as the age of its appearance, would be equally persistent. If it appears among Jewesses of St. Petersburg at the same early age as among Southern Asiatics, the Eastern origin of the former may be considered as well established.¹ But I fear that I am here falling into the same error that has misled so many inquirers into Jewish biostatics: I may be trusting to statistics derived from a few hundred subjects to decide on a question affecting several millions. I will therefore content myself with pointing out the importance of the subject and the need of further investigations.²

III. And, finally, in dealing with the question of the racial purity of Jews, as in the main we must deal with it, historically,

¹ On the other hand, the Talmud fixes the age of puberty for girls at the beginning of the thirteenth year, *i.e.*, when twelve years old (*Nidda* 46 a; Löw, "Lebensalter," p. 142); this seems earlier than at present.

² There is probably something distinctive about the gait of Jewish women. Here in England, at any rate, most Jewesses can be distinguished at once by their swaying walk, due to their walking from the hip, not from the knee. I am uncertain whether this distinction is merely a Continental habit imported into England, or whether it can be traced back to the times of Isaiah (iii, 16).

one has to take into account the fact that it takes two to make a mixed marriage, and that up to the present century there has been a repulsion, not perhaps wholly on one side, between Jews and Gentiles, which would scarcely allow of any wide communion such as would be implied in extensive intermarriage.¹ The ancient and mediæval States were Churches as well as States, and could not allow those to be citizens who could not be of the State religion. The isolation into which Jews were thus cast led, in the course of time, to a feeling of combined contempt and terror about them among the populace. The folklore of Europe regarded the Jews as something infra-human, and it would require an almost impossible amount of large toleration for a Christian maiden of the Middle Ages to regard union with a Jew as anything other than unnatural. The ancients had something of this feeling, and it was trebly intensified when the Church rose into power, regarding the Jews as the arch-heretics, the Deicides, the incarnate anti-Christ. Even at the present day, with all its toleration or indifference, much of this feeling remains, as sad experience has shown in Germany, Austria, Russia, and Roumania, and while it lasts no commingling of the opposing parties can take place on a large scale. At the present day the only country where mixed marriages occur in appreciable numbers is Prussia, where the majority of the offspring are brought up as Christians ("Studies in Jewish Statistics," p. 54). Taking all the Jews of the world it may be doubted if one mixed marriage occurs to five hundred pure Jewish marriages. And if this is so under the most fortunate circumstances Jews have ever known, intermarriage is not likely to have been more frequent in times of greater mutual repulsion. We might take the condition of affairs in Algeria as answering to the most favourable relations of Jews and Christians in the Middle Ages. Yet what do we find there? During nearly half a century (1830-77) in an average population of 25,000 Jews there have only been thirty mixed marriages altogether—not one a year (Ricoux, "*La Demographie de l'Algerie*," 1880, p. 71).

For these reasons I am inclined to support the long-standing belief in the substantial purity of the Jewish race, and to hold that the vast majority of contemporary Jews are the lineal descendants of the Diaspora of the Roman Empire. The question is one the main interest of which is anthropological, and its

¹ Even in the most isolated "colonies" of Jews, strenuous efforts seem to have been made to prevent fusion with the surrounding races. The white Jews of Cochín still preserve their identity from the black Jews. The Jews of China, the most isolated of all, seemed to have stood out for a long period. Even in 1851, two *Tsungs* (or 100 families) of the eight of which they were composed did not marry the daughters of the "heathen Chinese" (Finn, "*Orphan Colony*," p. 23).

complex difficulties can only hope for an ultimate solution from the progress of the Science of Man. I have therefore been glad of an opportunity of bringing it before the Anthropological Institute.

Explanation of Plates I and II.¹

The plates I and II accompanying this paper (first given in the *Photographic News* of April 17th and 24th, 1885, with articles by Mr. Galton and myself, the former explaining the process fully) give eight composites of Jewish lads on the left hand sides and opposite to the top and the bottom composite, the five components of which in each case they are composed. The middle composite on the right hand side is a co-composite of the other two, and thus practically contains the whole of the ten components. The composite on the extreme left is in each case that of five older lads who are not shown. The composites have capital letters attached to them, the components smaller letters corresponding to the former. Thus A is the composite produced by taking the photographs a_1 , a_2 , a_3 , a_4 , and a_5 accurately one on top of the other on the same sensitized plate. The discrepant features blur out while the common characteristics intensify one another and produce a *type* of all the components. B represents in the same way b_1 to b_5 , and C is then formed by superimposing A on B on the same negative.² D is a composite produced like A from five photographs of older youths which could not be given for want of space. Similar explanations apply to the composite E to H.

Of the fidelity with which they pourtray the Jewish expression there can be no doubt. Each of the eight composites shown might be taken as the portrait of a Jewish lad quite as readily as any of the components. In some cases, indeed, *e.g.*, f_3 , the portraits are less Jewish than the composites. The individuality and, I may perhaps even add, the beauty of these composites are very striking. It is difficult, even for those who know the process, to grasp the fact that the composite E is anything but the portrait of an individual; and the same may be said of D, the composite of five older lads, whose portraits are not shown. A, again, the composite of the five a 's, reminds me of several Jewish youngsters of my acquaintance, and might be taken for a slightly blurred photograph of any of them. This is the more curious since A does not resemble very closely any one of its components. These facts are something more than curious; they carry with them conclusions of scientific importance. If these Jewish lads, selected almost at random, and with parents

¹ The Council is indebted for these plates to the kindness of Mr. Thomas Bola*, of the *Photographic News*.

² C was afterwards "stiffened" by the addition of three other photographs.

from opposite parts of Europe, yield so markedly individual a type, it can only be because there actually exists a definite and well-defined organic type of modern Jews. Photographic science thus seems to confirm the conclusion I have drawn from history, that there has been scarcely any admixture of alien blood amongst the Jews since their dispersion.

These composites, there can be no doubt, give the Jewish expression. What do they teach us as to the elements which go to form it? The popular idea of a Jewish face is, that it has a long nose. But the full-face composites A to D have decidedly the Jewish expression, though the shape of the nose does not appear; and further, in composite H, as well as in co-composite G, which represents ten Jewish boys "rolled into one," the shape of the nose is markedly blurred, showing that there is no uniformity in this respect. The popular impression seems, then, to be disproved by these composites. Yet it contains a part of the truth, as do most of those rough averages which we term impressions. The nose does contribute much towards producing the Jewish expression, but it is not so much the shape of its profile as the accentuation and flexibility of the *nostrils*. This is specially marked in the composite D. Take a narrow strip of paper and place it over the nose in this composite, and much, though not all, of the Jewish expression disappears. And in the profile *components* it will be observed that every face has the curve of the nostril more distinctly marked than would be the case in the ordinary Teutonic face, for example.

A curious experiment illustrates this importance of the nostril towards making the Jewish expression. Artists tell us that the best way to make a caricature of the Jewish nose is to write a figure 6 with a long tail (fig. 1); now remove the turn of the



Fig. 1.



Fig. 2.



Fig. 3.

twist as in fig. 2, and much of the Jewishness disappears; and it vanishes entirely when we draw the continuation horizontally as in fig. 3. We may conclude, then, as regards the Jewish nose, that it is more the nostril than the nose itself which goes to form the characteristic Jewish expression.

But it is not alone this "nostrility" which makes a Jewish

face so easily recognizable. Cover up every part of composite A but the eyes, and yet I fancy any one familiar with Jews would say, "Those are Jewish eyes." I am less able to analyse this effect than in the case of the nose. The fulness of the upper lid, and the protuberance of the lower, may be remarked, as well as the scantiness of the eyebrows towards the outer edges. The size, brilliance, and darkness of the iris are also well marked. Many persons have remarked to me that Jewish eyes seem set closer together, and this property is seen in composites A and D giving much of its expression to the latter. I fail to see any of the cold calculation which Mr. Galton noticed in the boys at the school, at any rate in the composites A, B, and C. There is something more like the dreamer and thinker than the merchant in A. In fact, on my showing this to an eminent painter of my acquaintance, he exclaimed, "I imagine that is how Spinoza looked when a lad," a piece of artistic insight which is remarkably confirmed by the portraits of the philosopher, though the artist had never seen one. The cold and somewhat hard look in composite D, however, is more confirmatory of Mr. Galton's impression. It is noteworthy that this is seen in a composite of young fellows between seventeen and twenty, who have had to fight a hard battle of life even by that early age.

There remains the forehead, mouth, and chin to add their quota to the Jewish expression. The predominating characteristic of the forehead is breadth, and perhaps the thick and dark hair encircling it has something to contribute to the Jewishness of the face. The thickness of the lips, and especially a characteristic pout of the lower one, come out markedly in components and composites, both full face and profile. One may observe, too, the dimples (if one may use the term) which mark the termination of the mouth, and are seen in an exaggerated form in a_1 . Finally, the heavy chin, especially marked in the profile composites, confirms the popular association of this feature with the quality of perseverance, so ingrained in the Jewish nature.

We learn, then, from these composites that the Jewish expression is considerably more complicated than is ordinarily thought. Judged by these composites the Jewish face has accentuated flexible nostrils, largish mouth, with ends well marked, and pouting under-lip, heavy chin, broad forehead, with prominent superciliary ridges scantily covered with hair towards the outer extremities, and large brilliant dark eyes, set closely together, with heavy upper and protuberant lower lid, having a thoughtful expression in youth, transformed into a keen and penetrating gaze by manhood.

But words fail one most grievously in trying to split up into its elements that most living of all things, human expression;

and Mr Galton's composites say in a glance more than the most skilful physiognomist could express in many pages. "The best definition," said the old logicians, "is pointing with the finger" (*demonstratio optima definitio*); and the composites here given will doubtless form for a long time to come the best available definition of the Jewish expression and the Jewish type.

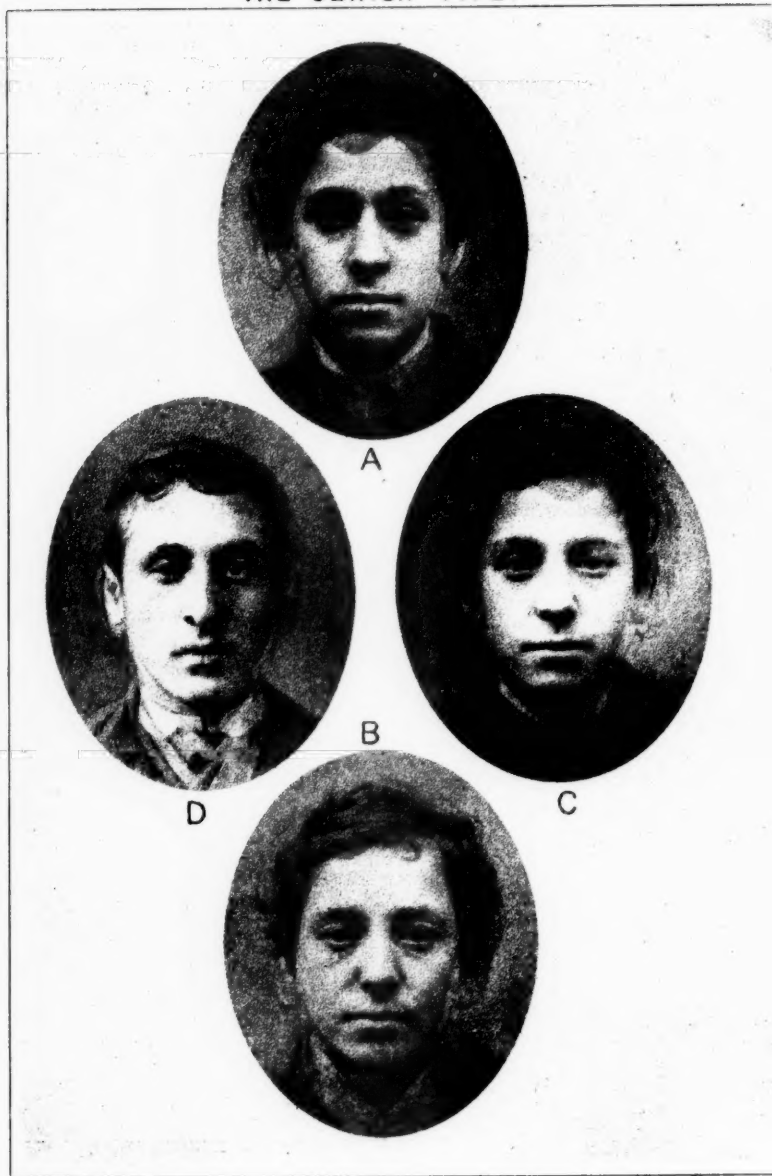
DISCUSSION.

The Rev. Dr. HERMANN ADLER (Delegate Chief Rabbi) congratulated the President on having chosen a subject of such profound interest to the student of anthropology. He agreed with the view propounded by Mr. Jacobs in his exhaustive paper, that on the whole there had not been any large foreign admixture with the Jewish race. As a theme for further inquiry, he drew attention to the copies in Dr. Wright's "Empire of the Hittites" of the representations discovered near Carchemish of the ancient inhabitants of that country. Their features bore an extraordinary resemblance to the inferior Hebraic type, with low forehead, hooked nose, and thick lips. If the hypothesis of Professor Sayce and Dr. Wright were accepted as correct, might the existence of this type, which argued kinship with the Mongolian race, and which differed so materially from the characteristic features of the Semitic race—the expanded forehead and symmetrical lineaments—be traced to intermarriage with the Hittites who are represented in the Bible as descended from Ham?¹ The dark and the blonde type, the speaker believed, should be regarded as original, dating from Bible times and described respectively in Canticles v, 11, and 2 Samuel xvi, 12. That the existence of the blonde type was not due to intermarriage might be proved by the fact that it was to be found among the Jews of North Africa, Syria, Arabia, and Persia, where, owing to the prevalence of fanaticism, mixed marriages had rarely, if ever, taken place. Goethe, a man of science as well as a poet, had pithily summed up the main anthropological characteristic of the Hebrew race in the words: "Es ist das beharrlichste Volk der Erde. Es ist, es war, es wird sein."

Dr. BEHREND observed that M. Littré had well said that all springs of human conduct arose from two instincts, that of self-preservation, and the reproductive instinct for the preservation of the race. The rightful cultivation of these two instincts led to the primary desire of all humanity—happiness, and the chief element in human happiness was health. Health, both of body and

¹ Note by Mr. Jacobs.—These Jewish-looking "Hittites" were probably the Semitic vassals of the genuine Hittites. Mr. T. Tyler has pointed out to me at the British Museum two types on the monuments, one of Mongolian features and a kind of Chinese tail, the other of the ordinary Semitic type. The latter he conjectures to be the vassals of the former, and thus their Jewish appearance is simply another example of the identity of the Jewish and the Semitic type.

THE JEWISH TYPE.

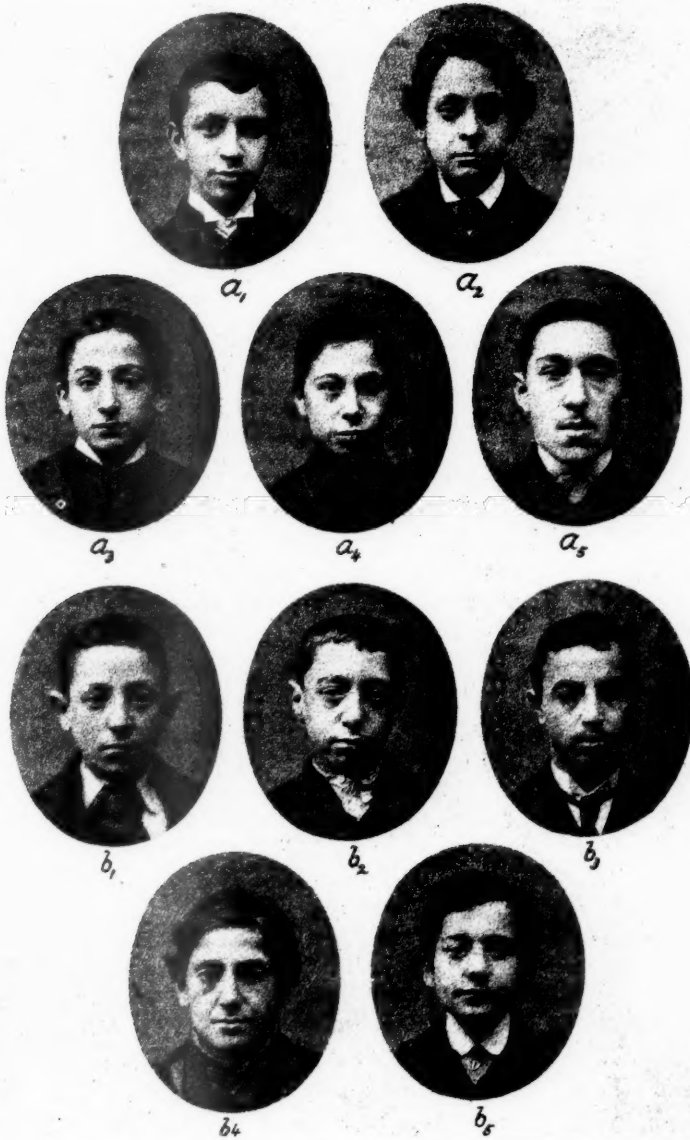


THE PHOTOGRAPHIC COMPANY, LONDON.

COMPOSITES.

ILLUSTRATIONS OF COMPOSITES.

Full Face.



FRANCIS GALTON, F.R.S. PHOTO

Components.

COMPOSITE PORTRAITURE.

mind, depended mainly upon conduct, not only of the individual, but also from heredity. Therefore we should expect that as conduct (and through conduct, health; and through health, happiness) was the object of religion, a code of religion should lay down laws, which would be a guide of conduct, and thereby conduce to health and happiness. These primary instincts, that of self-preservation and the reproductive instinct, were mainly regulated in the Jewish code by laws concerning diet, circumcision, and the sexual relations. The speaker had shown elsewhere at length (in a series of papers "On the Communicability to Man of the Diseases from Animals used as Food") that the Hebraic dietary laws preserved from the transmission of such diseases, and especially from the ravages of tuberculosis, which in its various forms was accountable for at least one-fifth of the entire mortality in this country. The sexual relations were regulated in the Hebrew code by laws which aimed at conserving the highest attainable degree of virility, by restraining undue indulgence, and ensuring procreation only at a specially healthy period. We need hardly pause to dwell on the enormous advantages such a start in the battle of life must give towards the "survival of the fittest."

The special biostatic privileges of Jews might be summed up in the proved facts that they married less, had fewer births, died less (that is, lived longer), increased at a greater rate, and had fewer stillborn and illegitimate children than any other race. It was quite unnecessary to repeat the statistics upon these points: they had been given over and over again, as by Hoffmann, Kolb, Bergmann, Legoyt, Bernouilli, Lagneau, Loeb, and many others; but it was interesting, and to the Jews vitally instructive, to note that in proportion as they mixed with other races—either of their own accord or by the spread of social tolerance—they lost these biostatic privileges, and the differences became effaced. Thus M. de Bergmann ("Beiträge zur Geschichte der Bevölkerung in Deutschland") showed that the relation of the sexes among the Jews in Posen had of late become much modified: that while from 1819 to 1864 it was as 111·94 boys to 100 girls, it fell to 106·39 to 100 from 1864 to 1873; similarly, the proportion of illegitimate births among them had increased, showing a relaxation in their adherence to the Mosaic code. In every one of the biostatic privileges they enjoyed, the penalty had to be paid for laxity of observances, and either in their own persons or in their descendants those who transgressed had to submit to the inexorable law of "being cut off from their own people," as far as was concerned in their share of the physical advantages of their race.

Mr. F. D. MOCATTA remarked that in addition to the two greater divisions of the Jewish race, Sephardim (Spanish) and Ashkenazim (German), not to mention the Italian Jews, there were various other families of Jews, such as those of the interior of Morocco, speaking Arabic, and not Spanish, those of Persia and of Yemen, and others. Besides these were large numbers of Jews in various countries, who might be considered not to be of the seed of

Abraham, or only to be to a greater or lesser degree crossed with it. Such were the Beni-Israel of Bombay, those of Foo-Choo-Foo (now nearly obliterated), the Riff Jews of the north of Morocco (an armed warlike set, loosely adhering to Judaism, but differing in physique and habit from other Jews), the nearly black and crispy Malabar Jews, &c. Also the Jews of South-East Russia in Europe who speak Russian, and are a well-developed, hardy, and generally ruddy race, are probably a different family from those of Poland and Central Russia, who still speak a dialect of German, their ancestors having been driven out of Germany at the period of the Crusades. This family might possibly represent, as the Karaites of the Crimea were often supposed to do, the descendants of the Khazars, a tribe on the Caspian, who about the seventh century founded a state and maintained it for the best part of two centuries, adopting the Jewish religion. All these, so to speak, outlying families of Jews might be regarded as descendants of proselytes, but as they had blended but very little with the general mass of the Jews, they did not much affect the subject then under consideration. In Biblical times the Jews frequently made matrimonial alliance with the surrounding populations, and it was a constant theme of the reproach of prophets and reformers, notably of Ezra and Nehemiah. Later on, at the time of the conquest of Titus, and when Christianity was only dawning on the Latin world, many Jews were carried to Rome, the bulk being the common people, who were put to labour on public works, and often devoured at gladiatorial shows; but some of whom being scholars and persons of refinement were admitted into Roman society, and by the purity of their doctrine won over to their philosophy and religion many of the higher classes, notably women, who were becoming tired of the superstitions and worldliness into which the pagan religions had degenerated. This probably led to alliances, and such is M. Renan's opinion. The Jews also, ever prone to adopt the habits and manners of surrounding nations, became lax, Romanised and Hellenised their names, as was evidenced in the Jewish catacombs at Rome, and probably contracted marriages with the people around them. All these sources might have led to an admixture of non-Jewish blood, the extent of such admixture (the alliances being at all times exceptional rather than general, and having become rarer with the persecutions which set in in the earlier ages of the Christian Church) was not likely to have essentially modified either the type or the physical or moral characteristics of the Jewish race, which might therefore be regarded for all practical purposes as pure. This was all the more probable since a large number of the issues of such mixed alliances naturally fell back to the dominant religions of the various times and countries, and ceased to have anything to do with Judaism. The speaker said he had not alluded to alliances made between Jews and Oriental peoples, Mohammedans, &c., in earlier times, firstly because it would be difficult to prove their frequency or the contrary, and secondly, because these peoples, being for the most part Semitic themselves, the changes thus induced would have been far less accentuated.

Sir JOSEPH FAYBER had no criticisms to make on the erudite papers which had been read that evening, but would ask one or two questions, first remarking that he had known Jews in Calcutta where one member of the family had light hair and grey eyes, another dark hair and complexion. It struck him that the Armenians presented those peculiar characteristics of physiognomy which were usually attributed to the Jew. Was this not simply a question of race, both being Semitic, and should not the so-called Jewish physiognomy rather be called Semitic than be regarded as the special attribute of the Hebrew as distinct from other Semitic races such as the Armenian? The speaker would ask the learned author of the second paper (Mr. Jacobs) if he could give any information as to the relation of the Afghans to the Jews? They undoubtedly had the physiognomy strongly marked,—it was often said they were descendants of the lost tribes, and there was a tribe among them calling themselves Beni-Israel. What was known and accepted among erudite Jews as to the origin of the Afghans? Again, what was the origin of the race of Black Jews on the Malabar coast? Were these not a mixed race, and were they not the result of admixture with the Teluigan races of Southern India? Pure as the Jewish race is, it would seem that it must be recognised that evidences of such admixture with other races did exist, and it would also seem that they had taken more or less an impression from their surroundings and from the character of the races among which they had settled.

Mr. LUCIEN WOLF did not agree with Mr. Jacobs' view of the physiological characteristics of Jews. Mr. Jacobs practically denied the existence of these characteristics, whereas the speaker felt inclined not only to assert their existence, but to assert that they were as well defined as to form real race distinctions. This view could be proved by statistics, and figures could also be given to prove the immunity of Jews from phthisis, which Mr. Jacobs contested. The purity of the race could not be demonstrated by anthropological measurements, for, physically, Jews varied enormously. It was different with their vital characteristics, and while we found that these were maintained at a high average we might rest assured that the race was being conserved. The evidence brought forward by Dr. Neubauer in favour of his view that the Jewish race had not kept itself pure told against the proposition it was intended to support when it was tested by other evidence. Thus it might be asked how was it that, notwithstanding these large accessions to Judaism, the race had not increased, and that in spite of these large infusions of alien blood, so important a vital characteristic as its high reproductive power has not become modified. It must be obvious that had the remarkable multiplying power of the Jews been left unchecked they must have increased far beyond their present numbers, and if they could receive accessions from other races without diminishing this power, then by this time they ought to have peopled the world. The conclusion must be then that the mixed marriages referred to had

not affected the purity of the race. By their tendency to sterility they have periodically carried off the perpetually growing fringe of Judaism, leaving always a pure nucleus to repropagate itself. Thus by bringing to light the fact that mixed marriages were generally sterile, the evidence cited by Dr. Neubauer, instead of telling against the purity of the Jewish race, revealed the most powerful argument in its favour. Nor was this theory of sterility a theory only. The speaker had investigated a large number of cases of mixed marriages—not quite so many as Mr. Jacobs—and in every single case he had found, if not absolute sterility, at least a falling off in the vital power of the offspring, placing them far below the average obtaining in the Jewish community. This falling off was only postponed sterility, as he had had occasion to prove himself by investigating the history through several generations of a few mixed marriages.

Mr. MARCUS N. ADLER said that in his capacity as Actuary he had had opportunities of examining various statistics bearing on the subject under discussion. He agreed with Mr. Jacobs' remark that in the case of Jews mixed marriages were not so productive as ordinary marriages. On this point Herr von Fircks had published some interesting statistics in the official Journal of the Statistical Bureau of Prussia, and a good deal of weight must be attached to these figures, inasmuch as the entire population of Prussia is compared with the Jewish population, which exceeds 300,000. It would appear, dealing with the averages from the year 1875 to the year 1881, that out of 100 marriages—

Where both parents were Protestants	there were 430 children.
„ „ „ „ Roman Catholics	„ „ 520 „
„ „ „ „ Jews	„ „ 441 „
„ one of the parents was a Protestant and the other Roman Catholic	„ „ 325 „
„ one of the parents was Christian and the other Jewish	„ „ 165 „
„ the father was a Jew and the mother a Protestant	„ „ 131 „

If we bore in mind that out of the number born not one-half attained marriageable age, and a still less number actually married, it followed that the descendants of mixed marriages were comparatively few, and this consideration became an important element in the argument as to the comparative purity of the Jewish race at the present day. With regard to insanity, there was little doubt but that it was more prevalent amongst Jews than among the Christian population. M. Legoyt published some statistics which would show that while one person was insane out of every 1,200 Protestants, and one person insane out of every 1,000 Roman Catholics, amongst the Jews one person was insane out of every 760. It would not do to ascribe this to marriages amongst near relations being rather frequent amongst Jews, for if so, why should there be a larger number of insane amongst Roman Catholics than amongst Protestants, seeing

that amongst the Roman Catholics marriages between cousins are prohibited? Moreover, Mr. George Darwin, in an interesting article which appeared in the *Fortnightly Review* in 1875, showed that insanity is not more prevalent in the offspring of marriages of cousins than in the offspring of other marriages. It was, however, found that persons living in towns were more subject to insanity than those living in the open country, and since the Jews mostly inhabit towns, the speaker was disposed to ascribe the more numerous cases of insanity among the Jews to the fact of their living among densely populated districts, also to their being more addicted to head work than to manual labour, and to many of them being of rather a nervous temperament.

Dr. ASHER believed that the figures supplied by Mr. Joseph Jacobs as to the prevalence of phthisis among Jews were entirely fallacious. Jews had an extraordinary power of resistance to phthisis, but when exposed for sufficient time to all those surroundings which lower vitality beyond the limits which their constitutions could bear, they necessarily succumb, but they endured and resisted far far beyond what would kill those not of their race. From an experience of several years as surgeon to the Jewish Board of Guardians, the speaker was enabled to say that phthisis among English Jews was almost unknown: the vast majority of those who died from tuberculosis were Russians or Poles, who in their own countries had been herded together under the most insanitary conditions. It was no more fair to accuse Jews of special liability to tuberculosis on account of those deaths than it would be to say that Brompton is a district specially liable to that disease because there were so many deaths therefrom in the hospitals with which the district abounded. Figures and facts substantiating the above would be found in the report for 1859 of Dr. Septimus Gibbon, Medical Officer of Health.

Mr. JOSEPH JACOBS, in reply, expressed his regret at the absence of Dr. Neubauer, which had deprived the meeting of his valuable criticism, though it had doubtless freed himself from a formidable opponent. He was under the impression that the translation "red-haired" in 1 Sam. xvi, 12, was mistaken, and that the word *edmoni* simply implied "ruddy," which might apply to a dark as to a fair complexion. He had only referred to the mistranslation of the Targum as showing that Jews of the sixth century A.D. saw no objection to a Jewish king being red-haired. There was no special Jewish theory of the origin of the Afghans. They shared with many other races of uncertain origin the doubtful honour of being connected with the Ten Tribes about whom so many wild theories had been broached. This was possible; or their Semitic appearance might be due to descent from the tribes of North Arabia or Mesopotamia. The Black Jews of Malabar were known to be proselytes of the White Jews who had arrived there. Mr. Wolf's remarks seemed to him to overlook the great complexity of the problems dealing with the origin of the biostatic and physical characteristics of the Jews. These might be due either to common

race or to common customs, and he was inclined to attribute them mainly to the latter. He had not denied their existence, indeed he hoped he had exhibited them with a larger body of evidence than had hitherto been collected. But he doubted whether they could be adduced to prove the purity of the Jewish race, which was the immediate question before them. There was no evidence to prove that the Jews in mediæval times had increased with the rapidity they are doing at present, and in any case their increase would be much checked by their persecutions which had carried off, he had calculated, over 382,000 victims. As regards phthisis, notwithstanding the remarks that had fallen from the medical gentlemen present, he could not ascertain any definite facts proving that Jews possess any racial immunity from the disease, though he had not "accused" them of any special liability to it. As Dr. Asher had owned, Jews were sometimes more and sometimes less afflicted by tubercle than their neighbours, showing that environment had most to do with their liability to consumption. In conclusion, he expressed a desire to hear the opinion of trained anthropologists on the main question. If light hair and eyes amidst a race generally dark necessarily proved intermixture, then one-fifth of contemporary Jews afforded that proof, though he had shown that these existed at a very early date. But if not, he saw no reason from history for denying that the Jews of the present day were the direct descendants of the Jews of the Bible.

Note by Mr. F. Galton.

The individual photographs were taken with hardly any selection from among the boys in the Jews' Free School, Bell Lane. They were the children of poor parents. As I drove to the school through the adjacent Jewish quarter, the expression of the people that most struck me was their cold, scanning gaze, and this was equally characteristic of the schoolboys.

The composites were made with a camera that had numerous adjustments for varying the position and scale of the individual portraits with reference to fixed fiducial lines; but, beautiful as those adjustments are, if I were to begin entirely afresh, I should discard them, and should proceed in quite a different way. This cannot be described intelligibly and at the same time briefly, but it is explained with sufficient fulness in the *Photographic News*, 1885, p. 244.

MARCH 10TH, 1885.

FRANCIS GALTON, Esq., M.A., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

- From the AUTHOR.—Biographical Sketch of James Aitken Meigs, M.D. By George Hamilton, M.D.
— Estudio Prehistórico sobre la Cueva del Tesoro. By Eduardo J. Navarro.
From the GERMAN ANTHROPOLOGICAL SOCIETY.—Correspondenz-Blatt. 1885, Nos. 1, 2.
From the ACADEMY.—Atti della Reale Accademia dei Lincei. Serie Quarta, Vol. I, Fas. 5.
From the ASSOCIATION.—Proceedings of the Geologists' Association. Vol. IX, No. 1. Title-page and Index to Vol. VIII.
From the SOCIETY.—Proceedings of the Royal Society. No. 235.
— Bulletins de la Société d'Anthropologie de Paris. 1884, Fas. 4.
— Journal of the Society of Arts. 1685.
— Journal of the Asiatic Society of Bengal. Vol. LII, Part 2.
— Proceedings of the Asiatic Society of Bengal. November, 1884.
From the EDITOR.—“Science,” Nos. 106, 107.
— “Nature,” Nos. 800, 801.
— “Knowledge,” No. 175.
— Revue Scientifique. Tom. XXXV, Nos. 9, 10.
— Revue Politique. Tom. XXXV, Nos. 9, 10.

The election of GEORGE FRANCIS LEGG, Esq., was announced.

The following paper was read by the author:—

*On CERTAIN BURIAL CUSTOMS as illustrative of the PRIMITIVE THEORY of the SOUL.*¹

By JAMES G. FRAZER, Esq., M.A.

IN his "Roman Questions,"² that delightful storehouse of old-world lore, Plutarch asks—"When a man who has been falsely reported to have died abroad, returns home alive, why is he not admitted by the door, but gets up on the tiles and so lets himself down into the house?" The curious custom to which Plutarch here refers prevails in modern Persia, for we read in "Hajji Baba" (c. 18) of the man who went through "the ceremony of making his entrance over the roof, instead of through the door; for such is the custom when a man who has been thought dead returns home alive." From a passage in Agathias we may perhaps infer that the custom is at least as old as the sixth century of our era.³ A custom so remote from our modern ways must necessarily have its roots far back in the history of our race. Imagine a modern Englishman, whom his friends had given up for dead, rejoining the home circle by coming down the chimney, instead of entering by the front door. In this paper I propose to show that the custom originated in certain primitive beliefs and observances touching the dead—beliefs and observances by no means confined to Greece and Rome, but occurring in similar if not identical forms in many parts of the world.

The importance attached by the Romans in common with most other nations to the due performance of burial rites is well known, and need not be insisted upon. For the sake of my argument, however, it is necessary to point out that the attentions bestowed on the dead sprang not so much from the affections as from the fears of the survivors. For, as every one knows, ghosts of the unburied dead haunt the earth and make themselves exceedingly disagreeable, especially to their undutiful relatives. Instances would be superfluous; it is the way of

¹ Some additions have been made to the paper as read on March 10th.

² No. 5. It is to be observed that the explanations which I give of many of the following customs are not the explanations offered by the people who practise these customs. Sometimes people give no explanation of their customs, sometimes (much oftener than not) a wrong one. The reader is therefore to understand that the authorities referred to are quoted for the fact of the customs, not for their explanation.

³ Agathias ii, 23. A man grievously sick was exposed in a desert place, and if he recovered and came home he was shunned as a ghost by every one till he had been purified by the Magi, and had, as it were, come back to life (οἷον ἀνταπολάβοι τὸ αὐτοῦ βιῶναι).

ghosts all the world over from Brittany to Samoa.¹ But burial by itself was by no means a sufficient safeguard against the return of the ghost; many other precautions were taken by primitive man for the purpose of excluding or barring the importunate dead. Some of these precautions I will now enumerate. They exhibit an ingenuity and fertility of resource worthy of a better cause.

In the first place an appeal was made to the better feelings of the ghost. He was requested to go quietly to the grave, and at the grave he was requested to stay there.²

But to meet the possible case of hardened ghosts, upon whom moral persuasion would be thrown away, more energetic measures were resorted to. Thus among the South Slavonians and Bohemians, the bereaved family, returning from the grave, pelted the ghost of their deceased relative with sticks, stones, and hot coals.³ The Chuwashé, a tribe in Finland, had not even the decency to wait till he was fairly in the grave, but opened fire on him as soon as the coffin was outside the house.⁴ The Jewish missiles are potsherds before, and clods after, the burial.⁵

Again, heavy stones were piled on his grave to keep him down, on the principle of "*sit tibi terra gravis*." This is the origin of funeral cairns and tombstones. As the ghosts of murderers and their victims are especially restless, every one who passes their graves in Arabia, in Germany, and in Spain is bound to add a stone to the pile. In Oldenburg (and no doubt elsewhere) if the grave is shallow the ghost will certainly walk.⁶

One of the most striking ways of keeping down the dead man is to divert the course of a river, bury him in its bed, and then allow the river to resume its course. It was thus that Alaric was buried, and Commander Cameron found the same mode of

¹ Sebillot, "Traditions et Superstitions de la Haute-Bretagne," I, p. 238; Turner, "Samoa," p. 150. The Annamese and Hindus particularly dread the ghosts of the unburied dead (J. G. Scott, "France and Tongking," p. 99; Monier Williams, "Religious Thought and Life in India," p. 239 *sqq.*).

² J. H. Gray, "China," I, pp. 300, 304. Similarly the Dacotahs address the ghost begging him to remain in his own place and not disturb his friends (Schoolcraft, "Indian Tribes," V, p. 65). The Karieng address their dead in like manner (Pallegoix, "Description du Royaume Thai ou Siam," I, p. 58).

³ Ralston, "Songs of the Russian People," p. 319; A. Bastian, "Der Mensch in der Geschichte," II, p. 329. Cf. K. Schwenk, "Slawische Mythologie," p. 325.

⁴ Castren, "Vorlesungen über die finnische Mythologie," p. 120.

⁵ Buxtorf, "Synagoga Judaica," p. 701 *sqq.*; Bodenschatz, "Kirchliche Verfassung der heutigen Juden," iv, pp. 173, 175.

⁶ W. Sonntag, "Todtenbestattung," p. 197; Brand, "Popular Antiquities," II, p. 309; Wuttke, "Deutscher Aberglaube," § 754, *cf.* 739, 748, 756, 758, 761; Klemm, "Culturgeschichte," II, p. 225; Waitz, "Anthropologie der Naturvölker," II, pp. 195, 324, 325, 524; *ib.* III, p. 202; Ratzel, "Völkerkunde," I, p. 74; K. Weinhold, "Altnordisches Leben," p. 488; L. Strackerjan, "Aberglaube und Sagen aus dem Herzogthum Oldenburg," I, p. 154.

burial still in vogue for chiefs amongst a tribe of Central Africa. Du Chaillu was informed that the Obongos, a dwarf tribe of negroes on the Equator, sometimes bury their dead thus.¹

The expedient of enclosing the grave with a fence too high for the ghost to "take" it, especially without a run, is common to the Finlanders and the Dyaks.²

Another simple but effectual plan is to nail the dead man to the coffin (the Chuwashé again)³ or to tie his feet together (among the Arabs), or his hands together (in Voigtland),⁴ or his neck to his legs (among the Troglodytes, Damaras, and New Zealanders).⁵ The Wallachians drive a long nail through the skull and lay the thorny stem of a wild rose bush on the shroud.⁶ The Californians and Damaras clinched matters by breaking his spine.⁷ The corpses of suicides and vampires had stakes run through them.⁸ Sometimes the heads of vampires are cut off,⁹ or their hearts torn out and hacked in pieces, and their bodies burned,¹⁰ or boiling water and vinegar are poured on their graves.¹¹

Other mutilations of the dead were intended not so much to keep the dead man in his grave as to render his ghost harmless. Thus the Australians cut off the right thumb of a slain enemy, that his ghost might not be able to draw the bow,¹² and Greek murderers used to hack off the extremities of their victims with a similar object.¹³

Again, various steps are taken to chase away the lingering ghost from the home he loves too well. Thus, the New Zealanders thrash the corpse in order to hasten the departure

¹ Jordanes, "Getica," c. xxx, § 158; Cameron, "Across Africa," I, p. 110; Du Chaillu, "A Journey to Ashango-land," p. 321.

² Castren, *op. cit.*, p. 121; Bastian, "Mensch," II, p. 368.

³ Bastian, *ib.* p. 337; likewise the Cheremissé (*ib.* p. 365). The modern Greeks sometimes resort to this practice, but only after a ghost has proved himself troublesome (B. Schmidt, "Das Volksleben der Neugriechen, p. 167, *seq.*).

⁴ Köhler, "Volksbrauch im Voigtland," p. 251.

⁵ Strabo xvi, c. 4, 17; Diodorus Siculus iii, 33; J. G. Wood, "Natural History of Man," I, p. 348; Yate, "New Zealand," p. 136. The Burmese tie together the two big toes, and usually also the two thumbs of the corpse ("The Burman: his Life and Notions," by Shway Yoe [J. G. Scott], II, p. 338; C. J. F. S. Forbes, "British Burma," p. 93).

⁶ Schott, "Wallachische Märchen," p. 298; H. F. Tozer, "Researches in the Highlands of Turkey," II, p. 92.

⁷ Bastian, "Mensch," II, p. 331; C. J. Andersson, "Lake Ngami," p. 226.

⁸ Bastian, II, p. 365; Ralston, "Songs of the Russian People," p. 413.

⁹ Tettau und Temme, "Die Volkssagen Ostpreussens, Lithauens und Westpreussens," p. 275, *seq.*; Wuttke, "Deutscher Aberglaube," § 765; Töppen, "Aberglauben aus Masuren," p. 114.

¹⁰ B. Schmidt, *loc. cit.*

¹¹ J. T. Bent, "The Cyclades," p. 45.

¹² Tylor, "Primitive Culture," I, p. 451.

¹³ Suidas, *s.v.* *μασχαλισθῆναι, μασχαλίσματα.*

of the soul;¹ the Algonkins beat the walls of the death-chamber with sticks to drive out the ghost;² the Chinese knock on the floor with a hammer;³ and the Germans wave towels about or sweep the ghost out with a besom,⁴ just as in old Rome the heir solemnly swept out the ghost of his predecessor with a broom made specially for the purpose.⁵ Amongst the Battas in Sumatra the priest officiates as ghost-sweeper, and he is helped by the female mourners.⁶ In modern Greece, as soon as the corpse is out of the house, the whole house is scoured.⁷ In Madagascar when it rains heavily the people beat the walls of their houses violently, in order to drive out the ghosts who may be taking shelter from the inclemency of the weather.⁸ In Scotland and Germany when the coffin was lifted up the chairs on which it had rested were carefully turned upside-down, in case the ghost might be sitting on them.⁹ The Kakhyens in Northern Burma, on the Chinese frontier, dance the ghost out of the house, accelerating his departure by a liberal application of stick.¹⁰ In ancient Mexico certain professional men were employed, who searched the house diligently till they found the lurking ghost of the late proprietor, whom they there and then summarily ejected.¹¹ In Siberia they give the ghost forty days' "law"; after which, if he is still hanging about, the shaman (medicine-man) hunts him out and drums him down to hell. To prevent the possibility of a mistake the shaman conducts the lost soul personally to the lower regions and secures him a favourable reception by standing brandy to the devils all round.¹²

¹ Yate, "New Zealand," p. 136; Polack, "Manners and Customs of the New Zealanders," I, p. 69.

² Brinton, "Myths of the New World," p. 255; "Relations des Jésuites," 1634, p. 23 (Canadian reprint).

³ Gray, "China," I, p. 280.

⁴ Wuttke, "Deutscher Aberglaube," §§ 725, 737; F. Schmidt, "Sitten und Gebräuche bei Hochzeiten, Taufen und Begräbnissen in Thüringen," p. 85; Köhler, "Volksbrauch, &c., im Voigtlande," p. 254.

⁵ Festus, *s.v. everriator*.

⁶ Murden, "History of Sumatra," p. 388.

⁷ C. Wachsmuth, "Das alte Griechenland im neuen," p. 120; J. T. Bent, "The Cyclades," p. 45.

⁸ H. W. Little, "Madagascar, its History and People," p. 84.

⁹ "Folk-lore Record," II, p. 214; Wuttke, "Deutscher Aberglaube," § 737; Köhler, *loc. cit.*; F. Schmidt, "Sitten und Gebräuche," &c., p. 92; Kuhn und Schwartz, "Norddeutsche Sagen, Märchen und Gebräuche," p. 435 *seq.*

¹⁰ J. Anderson, "Mandalay to Momien," p. 77 *seq.* This death-dance was witnessed by Dr. Anderson and his companion, Col. Sladen. Indeed, by special invitation the learned doctor and the gallant colonel joined in the lugubrious dance and exerted themselves to such good purpose that after two turns the ghost fairly took to his heels and bolted out of the house, hotly pursued by the *premier danseur* with a stick.

¹¹ H. H. Bancroft, "Native Races of the Pacific States of North America," I, p. 641.

¹² W. Radloff, "Aus Siberien," II, p. 52 *sqq.*

In North Germany, if a ghost persistently intrudes on your premises, you can get rid of him very simply. You have only to throw a sack over him, and having thus bagged him to walk off with your sack to some other place (as a rule the back garden of a neighbour is selected) and there empty it out, having first clearly explained to the ghost the exact bounds which you wish him to keep. Of course no sooner is your back turned than the ghost starts for home too. His plan is to jump on the back of the first person he sees and ride him in, but when he comes to the boundary, off he falls; and so it goes on, the ghost falling off and jumping on again most gamely, to all eternity. I nearly forgot to say that you had better not try to sack a ghost unless you have been born on a Sunday night between eleven and twelve o'clock.¹

The favourite haunt of the ghost is usually the spot where he died. Hence in order to keep him at least from the house it has been a common practice to carry dying persons to lonely places and leave them there; but if the man dies in the house, it is deserted and left to its ghostly tenant. Thus the Kaffirs carry a sick man out into the open air to die, and the Maoris and Esquimaux remove their sick into special sheds or huts. If a Kaffir or Maori dies before he can be carried out the house is tabooed and deserted. If an Esquimaux is present at the death of a relative he has to throw away his clothes and never use them again.² The Bakalai in Central Africa drive sick people from the village, but if several people should happen to die in the village it is deserted.³ Amongst the Balondas, when a chief or his principal wife dies, the village is deserted; but when an ordinary man dies it is only his house which is abandoned.⁴ In England up to the end of last century it was a common practice to shut up a room in which a member of the family had died.⁵ Amongst the Damaras, when a chief dies, the tribe deserts the neighbourhood; but after a time they return, the new chief offers sacrifice at the grave of his predecessor, and the village is occupied as before.⁶ After a death the Andaman Islanders

¹ Kuhn und Schwartz, "Norddeutsche Sagen, Märchen und Gebräuche," p. 120.

² Lichtenstein, "Travels in Southern Africa," I, pp. 258, 259; J. Campbell, "Travels in South Africa," p. 515 *seq.*; G. Fritsch, "Die Eingeborenen Süd-Afrika's," p. 116; R. Taylor, "*Te ika a mau*," or, New Zealand and its inhabitants," p. 170; Yate, "New Zealand," p. 86; J. G. Wood, "Natural History of Man," II, p. 719.

³ Du Chaillu, "Equatorial Africa," pp. 384, 385. So with the Ashira, *ib.* p. 413.

⁴ Wood, "Natural History of Man," I, p. 419.

⁵ Dyer, "English Folk-lore," p. 231.

⁶ G. Fritsch, "Die Eingeborenen Süd-Afrika's," p. 236; Wood, "Natural History of Man," I, p. 349.

migrate temporarily to a new camping ground.¹ The Altaians in Siberia make a practical distinction between a hut which is portable (a felt hut) and one which is not so (a hut of bark or wood). After a death they abandon the latter, but carry the former away with them after it has been purified by the shaman.² In Panama and Darien they send the sick into the woods, just as in Persia they sent them into the wilderness, to die.³ In Madagascar no one except the sovereign is allowed if ill to stay within the palace.⁴ There are traces in Greece, Rome, China, and Corea of this custom of carrying dying persons out of the house.⁵

But in case the ghost should, despite of all precautions, make his way back from the grave, steps were taken to barricade the house against him. Thus in some parts of Russia and East Prussia an axe or a lock is laid on the threshold, or a knife is hung over the door,⁶ and in Germany as soon as the coffin is carried out of the house all the doors and windows are shut, whereas so long as the body is still in the house the windows (and sometimes the doors) are left open to allow the soul to escape.⁷ In some parts of England every bolt and lock in the house is unfastened, that the ghost of the dying man may fly freely away.⁸

But if primitive man knew how to bully he also knew how to outwit the ghost. For example, a ghost can only find his way

¹ E. H. Man, "Aboriginal Inhabitants of the Andaman Islands," pp. 74, 77.

² Radloff, "Aus Siberien," I, p. 321. Cf. Klemm, "Culturgeschichte," III, p. 174. On the huts, see Radloff, p. 267 *sqq.*

³ Bancroft, "Native Races of the Pacific States," I, p. 781; Agathias, ii, 23.

⁴ Ellis, "History of Madagascar," I, p. 242.

⁵ Euripides, "Alcestis," v. 234 *sqq.* cf. 205; Scholiast on Aristophanes, "Lysistrata," v. 611; Seneca, "Epist.," I, xii, 3; Gray, "China," I, p. 279. In modern Greece the corpse is laid out in the entrance hall (Wachsmuth, "Das alte Griechenland im neuen," p. 108). In Corea no one is allowed to die on the *kang* (ordinary sleeping place), but is placed on a board (J. Ross, "History of Corea," p. 321).

⁶ Ralston, "Songs of the Russian People," p. 318; Wuttke, "Deutsche Aberglaube," §§ 736, 766; Töppen, "Aberglaube aus Masuren," p. 108.

⁷ Rochholz, "Deutscher Glaube und Brauch," I, p. 171; Schleicher, "Volks-thümliches aus Sonzenberg," p. 152; Sonntag, "Todtenbestattung," p. 169; Wuttke, §§ 737, 725; Gubernatis, "Storia comparata degli usi funebri in Italia e presso gli altri popoli Indo-Europei," p. 47; G. Lammert, "Volksmedizin und medizinischer Aberglaube in Bayern," pp. 103, 105, 106; F. Schmidt, "Sitten und Gebräuche," pp. 85, 92; Strackerjan, "Aberglaube und Sagen aus dem Herzogthum Oldenburg," II, p. 129; Tettau und Temme, "Volksagen," p. 285; A. Kuhn, "Märkische Sagen und Mährchen," p. 367; Nork, "Die Sitten und Gebräuche der Deutschen und ihrer Nachbarvölker," pp. 479, 482; Köhler, *op. cit.*, pp. 251, 254; F. Panzer, "Beitrag zur deutschen Mythologie," I, p. 263; Kuhn und Schwartz, *op. cit.*, p. 435. In Masuren, on the other hand, the doors and windows are left open for some time after the corpse has been carried out in case the ghost may be lingering in the house (Töppen, "Aberglauben aus Masuren," p. 108).

⁸ Dyer, "English Folk-lore," p. 230; Brand, "Popular Antiquities," II, p. 231. Cf. Henderson, "Folk-lore of the Northern Counties," pp. 53, 56 *seq.*

back to the house by the way by which he left it.¹ This little weakness did not escape the vigilance of our ancestors, and they took their measures accordingly. The coffin was carried out of the house, not by the door, but by a hole made for the purpose in the wall, and this hole was carefully stopped up as soon as the body had been passed through; so that when the ghost strolled quietly back from the grave, he found, to his surprise, that there was no thoroughfare. The credit of this ingenious device is shared by Greenlanders, Norsemen, Hottentots, Bechuanas, Samoeds, Ojibways, Algonkins, Laosians, Hindoos, Tibetans, Siamese, Chinese, Balinese, and Fijians. These special openings, or "doors of the dead," are still to be seen in a village near Amsterdam, and they were common in some towns of Central Italy, as Perugia and Assisi.² In Lao this mode of exit is reserved for the bodies of women dying in childbirth,³ the reason for which is apparent from the belief of the neighbouring Kakhyens that the ghosts of such women are changed into fearful vampires⁴—a villainous conceit very different from the knightly courtesy of the Aztecs, who allowed the souls of women who died in child-bed to take their places side by side with the brave who died in battle in the better land.⁵ A trace of the same custom survives in Thüringen, where it is thought that the ghost of a man who has been hanged will return to the house

¹ For a similar reason you should never move a sleeper's body, for if you do the absent soul on its return will not be able to find its way back into the body and the sleeper will wake no more. See Strackerjan, "Aberglaube und Sagen aus dem Herzogthum Oldenburg," I, p. 378; *ib.* II, p. 114; Wuttke, "Deutscher Aberglaube," § 60; Köhler, "Volksbrauch im Voigtland," p. 501; Grohmann, "Aberglauben und Bräuche aus Böhmen und Mähren," p. 60.

² Yule on Marco Polo, I, p. 188; Crantz, "Greenland," I, p. 237; Weinhold, "Altnordisches Leben," p. 476; Tylor, "Prim. Cult.," II, p. 26; Waitz, III, p. 199; Fritsch, "Die Eingeborenen Süd-Afrika's," p. 335; Thunberg's "Account of the Cape of Good Hope," in Pinkerton's "Voyages and Travels," xvi, p. 142; Moffat, in Gardner, "Faiths of the World," I, p. 939; Bastian, "Mensch," II, p. 322; Klemm, "Culturgeschichte," II, pp. 221, 225; *ib.* III, p. 293; Sonntag, "Todtenbestattung," p. 51; "Relations des Jésuites," 1634, p. 23; Brinton, "Myths of the New World," p. 255; T. Williams, "Fiji and the Fijians," I, p. 197 (ed. 1860); C. J. Andersson, "Lake Ngami," p. 466; Gubernatis, "Usi funebri," p. 52; C. Bock, "Temples and Elephants," p. 262; Pallegoix, "Description du Royaume Thai ou Siam," I, p. 245; Bowring, "Kingdom and People of Siam," I, p. 222; J. Crawford, "History of the Indian Archipelago," II, p. 245; Lafitau, "Mœurs des Sauvages Américains," II, p. 401. An extraordinary variation of this custom is seen amongst the Jolloffs on the Gambia, who break down the whole fence before they carry the dead out of the house (A. B. Ellis, "The Land of Fetish," p. 13). A dead Pope is carried out by a special door, which is then blocked up till the next Pope dies.

³ C. Bock, *loc. cit.* Strictly speaking the body is taken out through a hole in the floor, for houses in Lao are built on posts at a height of five to eight feet from the ground (Bock, *op. cit.*, p. 304).

⁴ J. Anderson, "Mandalay to Momien," p. 145.

⁵ Brinton, "Myths of the New World," p. 263; Bancroft, "Native Races," III, p. 533.

if the body be not taken out by a window instead of the door.¹ In Burma the dead are carried out of a town by a gate reserved for the purpose.² The Siamese, not content with carrying the dead man out by a special opening, endeavour to make assurance doubly sure by hurrying him three times round the house at full speed—a proceeding well calculated to bewilder the poor soul in the coffin.³

The Araucanians adopt the plan of strewing ashes behind the coffin as it is being borne to the grave, in order that the ghost may not be able to find his way back.⁴ With a like intent the Kakhyens returning from the grave scatter rice along the path.⁵ The Tonga Islanders strewed sand about the grave.⁶

The very general practice of closing the eyes of the dead appears to have originated with a similar object; it was a mode of blindfolding the dead, that he might not see the way by which he was carried to his last home. At the grave, where he was to rest for ever, there was of course no motive for concealment; hence the Romans,⁷ and apparently the Siamese,⁸ opened the eyes of the dead man at the funeral pyre, just as we should unbandage the eyes of an enemy after conducting him to his destination. In Nuremburg the eyes of the corpse were actually bandaged with a wet cloth.⁹ In Corea they put blinkers, or rather blinders, on his eyes; they are made of black silk, and are tied with strings at the back of his head.¹⁰ The Jews put a potsherd and the Russians coins on each of his eyes.¹¹ The notion that if the eyes of the dead be not closed his ghost will return to fetch away another of the household, still exists in Bohemia, Germany, and England.¹²

¹ Wuttke, § 756; Schleicher, p. 152. It was an old German law that the corpses of criminals and suicides should be carried out through a hole under the threshold (Grimm, "Deutsche Rechtsalterthümer," p. 726 sqq.).

² "The Burman," by Shway Yoe, II, p. 342.

³ Pallegoix and Bowring as above. In some parts of Scotland and Germany the corpse used to be carried three times round the church (C. Rogers, "Social Life in Scotland," I, p. 167; Rochholz, I, p. 198).

⁴ Klemm, "Culturgeschichte," V, p. 51; Wood, "Nat. Hist. of Man," II, p. 565.

⁵ J. Anderson, "Mandalay to Momien," p. 144.

⁶ Mariner, "Tonga Islands, I, p. 392.

⁷ Pliny, "Nat. Hist.," xi, § 150. The reason assigned by Pliny is that the dead should be seen for the last time not by man but by heaven.

⁸ C. Bock saw that the eyes of a dead man at the pyre were open (in Siam), and he says that in Lao (in Northern Siam) it is the custom to close the eyes of the corpse ("Temples and Elephants," pp. 58, 261).

⁹ Lammert, "Volksmedizin," p. 103.

¹⁰ J. Ross, "History of Corea," p. 325.

¹¹ Bodenschatz, "Kirchliche Verfassung der heutigen Juden," iv, p. 174; Gubernatis, "Csi Funebri," p. 50; Ralston, "Songs of the Russian People," p. 316.

¹² J. V. Grohmann, "Aberglaube," &c., p. 188; Lammert, "Volksmedizin," p. 106; Wuttke, § 725; Dyer, "English Folk-lore," p. 230; Schleicher, "Volksthümliches aus Sonnenberg," p. 152; Rochholz, "Deutscher Glaube und Brauch," I, p. 196.

With a similar object, the corpse is carried out of the house feet foremost, for if he were carried out head foremost his eyes would be towards the door and he might find his way back. This custom is observed and this reason is assigned for it in many parts of Germany and among the Indians of Chile.¹ Conversely in Persia when a man is setting out on a journey he steps out of the house with his face turned towards the door, hoping thereby to secure a safe return.² In Thüringen and some parts of the North of England it used to be the custom to carry the body to the grave by a roundabout way.³ In Voigtland there are special "church roads" for carrying the dead to the graveyard; a corpse is never carried along the high road.⁴ In Madagascar no corpse is allowed to be carried along the high road or chief thoroughfare of the capital.⁵ In Burma a corpse is never carried towards the centre of a town, much less taken into it; if a man dies in the jungle and the funeral has to pass a village it skirts the outside of it.⁶ The Chinese are not allowed to carry a corpse within the gates of a walled city.⁷

I venture to conjecture that the old Hawaiian, Roman, German, and Mandingo practice of burying by night⁸ or in the dusk may have originally been intended, like the customs I have mentioned, to keep the way to the grave a secret from the dead man, and it is possible that the same idea gave rise to the practice of masking the dead—a practice common to the prehistoric inhabitants of Greece and to the Aleutian Islanders.⁹ The Aztecs masked their dead kings, and the Siamese do so still.¹⁰ Among the Shans the face of a dead chief is invariably covered with a mask of gold or silver.¹¹

¹ Wuttke, "Deutscher Aberglaube," § 736; Klemm, "Culturgeschichte," II, p. 101. On the other hand, in modern Egypt the corpse is carried out head foremost (Lane, "Manners and Customs of the Modern Egyptians," II, p. 291, *ed.* 1836.

² Monier's "Hajji Baba," c. i, *fin.*

³ F. Schmidt, "Sitten und Gebräuche in Thüringen," p. 94. The English custom was verbally communicated to me.

⁴ Köhler, "Volksbräuch im Voigtland," p. 258.

⁵ Ellis, "History of Madagascar," I, p. 241.

⁶ "The Burman: his Life and Notions," by Shway Yoe, II, p. 342 *seq.*

⁷ Gray, "China," I, p. 323.

⁸ Ellis, "Polynesian Researches," IV, p. 361 (*cf.* Cook's "Voyages," VII, p. 149 *seq.*, *ed.* 1809); Servius on Virgil, "*Æn.*," I, p. 186; F. Schmidt, *loc. cit.*; Mungo Park, "Travels in the Interior Districts of Africa," p. 414. Night burial was sometimes practised in Scotland (C. Rogers, "Social Life in Scotland," I, p. 161). In Benguela (West Africa) the corpse is burned at sundown (Waitz, "Anthropologie," II, p. 196).

⁹ Schliemann, "Mycenæ," pp. 198, 219-223, 311 *seq.*; Bancroft, "Native Races of the Pacific States," I, p. 93. *Cf.* Miss A. W. Buckland in vol. xiv, p. 229, of this Journal. I regret that I have not seen the standard work of Benndorf, "Antike Gesichtshelme und Sepulcralmasken," Wien 1878.

¹⁰ Bancroft, "Native Races," II, p. 606; Pallegoix, "Siam," I, p. 247.

¹¹ A. S. Colquhoun, "Amongst the Shans," p. 279.

To a desire to deceive the dead man I would also refer the curious custom amongst the Bohemians of putting on masks and behaving in a strange way as they returned from a burial.¹ They hoped, in fact, so to disguise themselves that the dead man might not know and therefore might not follow them. Whether the widespread mourning customs of smearing the body with ashes, mud, or paint, mutilating it by gashes, cutting off the hair or letting it grow, and putting on beggarly attire or clothes of an unusual colour (black, white, or otherwise), may not also have originated in the desire to disguise and therefore protect the living from the dead, I cannot here attempt to determine.² This much is certain, that mourning customs are always as far as possible the reverse of those of ordinary life. Thus at a Roman funeral the sons of the deceased walked with their heads covered, the daughters with their heads uncovered, thus exactly reversing the ordinary usage, which was that women wore coverings on their heads while men did not. Plutarch, who notes this, observes that similarly in Greece men and women during a period of mourning exactly inverted their usual habits of wearing the hair—the ordinary practice of men being to cut it short, that of women to wear it long.³

The objection, deeply rooted in many races, to utter the names of deceased persons,⁴ sprang no doubt from a fear that the dead might hear and answer to his name. In East Prussia if the deceased is called thrice by his name he appears.⁵ This reluctance to mention the names of the dead has modified whole languages. Thus among the Australians, Tasmanians, and Abipones, if the name of a deceased person happened to be a common name, *e.g.*, the name of an animal or plant, this name was abolished and a new one substituted for it.⁶ During the residence of the Jesuit missionary Dobritzhoffer amongst the Abipones, the name for tiger was thus changed three times.⁷ Amongst the Indians of Columbia near relatives of the deceased often change their names, in the belief that the ghost will return if he hears the familiar names.⁸

¹ Bastian, "Der Mensch in der Geschichte," II, p. 328.

² See note I at end.

³ Plutarch, "Questiones Romanæ," p. 14.

⁴ Tylor, "Early History of Mankind," p. 142. Amongst some Indian tribes of North America whoever mentions a dead man's name may be compelled to pay a heavy fine to the relatives (Bancroft, "Native Races," I, p. 357, note).

⁵ Wuttke, "Deutscher Aberglaube," § 754.

⁶ Tylor, *op. cit.*, p. 144 *sqq.*

⁷ Klemm, "Culturgeschichte," II, p. 99; Dobritzhoffer, "The Abipones," II, p. 208 *sqq.*

⁸ Bancroft, "Native Races," I, p. 248. Cf. Waitz, "Anthropologie," VI, p. 811. When a survivor bears the same name as the deceased he drops it during the time of mourning (Charlevoix, "Journal Historique d'un Voyage dans

While no pains were spared to prevent the dead man from returning from the grave, on the other hand precautions were taken that he should not miss the way to it. The kings of Michoacan were buried at dead of night, but the funeral train was attended by torch-bearers and preceded by men who swept the road, crying, "Lord, here thou hast to pass, see that thou dost not miss the way."¹ In many Wallachian villages no burial takes place before midday, because the people believe that if the body were buried before noon the soul might lose its way and never reach its place of rest. But if it is buried in the afternoon they think that the sun, descending to his rest, will guide the tired spirit to its narrow bed.²

"Soles occidere et redire possunt:
Nobis cum semel occidit brevis lux,
Nox est perpetua una dormienda."

I must pass lightly over the kindlier modes of barring the dead by providing for the personal comforts of the poor ghost in his long home. That the dead still think and feel in the grave is a very old opinion, the existence of which is attested by many customs as well as by the evidence of the poets, those lovers of the past, and by no poet more vividly than by Heine, where he tells us how the French grenadier lies in his quiet grave, listening, listening, till his ear catches the far-off thunder of the guns, and with a clatter of horse-hoofs and clash of steel the cavalry rides over his grave. Hades, or the common abode of all the dead, whether beneath the earth or in a far island of the sea, is probably the later dream of some barbaric philosopher, some forgotten Plato; and the partition of Hades into heaven and hell is certainly the latest, as it is possibly the last, development of the belief in a life hereafter.³

The nearly universal practice of leaving food on the tomb or of actually passing it into the grave by means of an aperture or tube is too well known to need illustration. Like the habit of dressing the dead in his best clothes,⁴ it probably originated in

l'Amerique Septentrionale, II, p. 109; Lafitau, "Mœurs des Sauvages Américains," II, p. 434).

¹ Baneroff, II, p. 621. Cf. Charlevoix, *op. cit.*, p. 107.

² Schott, "Wallachische Mährchen," p. 302. The custom is perhaps a relic of night burial. The reason assigned for it is too beautiful to be old. In Russia also the sun is regarded as *ψυχοπομπός*; but it is apparently enough if the burial takes place by daylight (Ralston, "Songs of the Russian People," p. 319).

³ It is interesting to find the three strata of belief still clearly existing side by side in modern Greece. See B. Schmidt, "Das Volksleben der Neugriechen," p. 235 *sqq.*

⁴ Charlevoix, "Journal Historique," II, p. 107; W. Radloff, "Aus Siberien," I, pp. 321, 379; Spenser St. John, "Life in the Forests of the Far East," I, p. 57; Klemm, "Culturgeschichte," II, pp. 104, 225; *ib.* IV, p. 38; J. G. Scott, "France and Tongking," p. 97; Schoolcraft, "Indian Tribes," II, p. 68; *ib.* IV, 54; Wood, "Natural History of Man," I, p. 562; *ib.* II, 190, 512, 542;

the selfish but not unkindly desire to induce the perturbed spirit to rest in the grave and not come plaguing the living for food and raiment.¹ One instance, however, of the minute care with which the survivors will provide for the wants of the departed, in order that he may have no possible excuse for returning, I cannot refrain from mentioning. In the Saxon district of Voigtland, with its inclement sky, people have been known to place in the coffin an umbrella and a pair of goloshes.² Whether these utensils are meant for use in heaven or elsewhere is a question which I must leave to theologians.

A pathetic example is furnished by some Indian tribes of New Mexico, who drop milk from the mother's breast on the lips of her dead babe.³ Similarly in Africa we hear of a Myoro woman who bore twins that died; so she kept two little pots to represent the children, and every evening she dropped milk from her own breast into them, lest the spirits of the dead babes should torment her.⁴

In the Mili Islands in the Pacific, after they have committed the body to the earth, they lade a small canoe with cocoa-nuts, hoist a sail, and send it out to sea, hoping that the soul will sail away with the frail bark and return no more.⁵

Bancroft, "Native Races," I, p. 86; "The Burman," by Shway Yoe, II, p. 338; P. Bouche, "La Côte des Esclaves," p. 213; Lafitau, "Mœurs des Sauvages Américains," II, p. 389; Schott, "Wallachische Mährchen," p. 302; Wachsmuth, *op. cit.*, p. 108; Taylor, "New Zealand," p. 218; Köhler, "Volksbrauch im Voigtlande," p. 252; Baron's "Description of the Kingdom of Tonqueen," in Pinkerton's "Voyages and Travels," IX, pp. 698, 700, 730. In modern Greece the corpse is arrayed in its best clothes, but at the grave these are entirely destroyed, or at least rendered valueless, by being snipped with scissors or saturated with oil ("Folk-lore Journal," II, p. 168 *sq.*). This may be (as the writer half suggests) a modern precaution against thieves. On the destruction of the property of the dead, see next note.

¹ The fear of the dead, which underlies all these burial customs, may have sprung from the idea that they were angry with the living for dispossessing them. Hence, rather than use the property of the deceased and thereby incur the anger of his ghost, men destroyed it. The ghost would then have no motive for returning to his desolated home. Thus we are told by the careful observer, Mr. G. M. Sproat, that the Ahts of Vancouver's Island "bury a man's personal effects with him, and burn his house, in the fear that if these were used, the ghost would appear and some ill consequences would follow." He adds: "I have not found that any articles are deposited in burying grounds with the notion that they would be useful to the deceased in an after time, with the exception of blankets" ("Scenes and Studies of Savage Life," p. 260). The idea that the souls of the things thus destroyed are despatched to the spirit-land (see Tylor, "Primitive Culture," I, p. 480 *sqq.*; and for an additional example of "killing" the things placed in the grave, see H. H. Johnston, "The River Congo," p. 246) is less simple and therefore probably later. For in the evolution of thought as of matter the simplest is the earliest.

² Köhler, "Volksbrauch im Voigtland," p. 441; Wuttke, § 734.

³ Bancroft, I, p. 360; *cf.* III, 543.

⁴ J. H. Speke, "Journal of the Discovery of the Source of the Nile," p. 541.

⁵ Waitz, V, ii, p. 152 *seq.* Gerland remarks that this is a remnant of the

Merely mentioning the customs of building a little hut for the accommodation of the soul, either on the grave or on the way to it,¹ and of leaving straw on the road, in the hope that the weary ghost will sit down on it and never get as far as the house,² I now come to two modes of barring the ghost which, from their importance, I have reserved to the last, I mean the methods of barring the ghost by fire and water.

First, by fire. After a funeral certain heathen Siberians, who greatly fear the dead, seek to get rid of the ghost of the departed by leaping over a fire.³ Similarly, at Rome, mourners returning from a funeral stepped over fire,⁴ and in China they sometimes do so to this day.⁵ Taken in connection with the Siberian custom the original intention of this ceremony of stepping over fire at Rome and in China can hardly have been other than that of placing a barrier of fire between the living and the dead. But, as has been the case with so many other ceremonies, this particular ceremony may well have been practised long after its original intention was forgotten. For customs often live on for ages after the circumstances and modes of thought which gave rise to them have disappeared, and in their new environment new motives are invented to explain them. As might have been expected, the custom itself of stepping over fire often dwindled into a mere shadow of its former self. Thus the South Slavonians returning from a funeral are met by an old woman carrying a vessel of live coals. On these they pour water, or else they take a live coal from the hearth and fling it over their heads.⁶ The Brahmans contented themselves with simply

Polynesian custom of sending the body (as well as the soul) out to sea. Cf. Turner, "Samoa," p. 306. The Norsemen sometimes disposed of their dead thus (Grimm, "Deutsche Mythologie," II, p. 692 *sq.*; Weinhold, *op. cit.*, pp. 479, 483 *sq.*; Rochholz, I, p. 174). The custom of burying the corpse in a canoe or boat is common to the Norsemen, Slavonians, Ostjaks, Indians of the Columbia River, and Polynesians (Grimm, *loc. cit.*; Weinhold, p. 495 *sqq.*; Ralston, *op. cit.*, p. 108; Brinton, "Myths of the New World," p. 265; Bastian, "Mensch," II, p. 331; Waitz, *loc. cit.* and VI, pp. 401, 405, 411).

¹ Chalmers and Gill, "Work and Adventure in New Guinea," p. 56; Klemm, "Culturgeschichte," II, p. 297; Bastian, "Mensch," II, p. 328; Waitz, "Anthropologie," II, p. 195; *ib.* III, p. 202; *ib.* V, ii, p. 153; *ib.* VI, pp. 686, 806, 807; Wood, "Natural History of Man," I, p. 574; Cook's "Voyages," IV, p. 62 *seq.* (ed. 1809); *ib.* I, p. 93 *seq.*; Bosman's "Guinea" in Pinkerton's "Voyages and Travels," XVI, p. 431; J. Leighton Wilson, "Western Africa," p. 171 (German translation); J. Anderson, "Mandalay to Momien," p. 144; Cameron, "Across Africa," I, p. 49; Marco Polo, i, c. 40.

² Wuttke, "Deutscher Aberglaube," § 739; Töppen, "Aberglauben aus Masuren," p. 109.

³ Meiners, "Geschichte der Religionen," II, p. 303.

⁴ Festus, s.v. *agua et igne*.

⁵ Gray, "China," I, pp. 287, 305.

⁶ Ralston, "Songs of the Russian People," p. 320.

touching fire,¹ and in Ruthenia the mourners merely look steadfastly at the stove or place their hands on it.² The Arabs of old, it may be noted, adopted much the same means to prevent the return of a living man whom they disliked; when he departed they lit a fire behind his back and cursed him.³

So much for the barrier by fire. Next for the barrier by water. The Wends of Geisnitz make a point of passing through running water as they return from a burial; in winter, if the river is frozen, they break the ice in order to wade through the water.⁴ In modern Mytilini and Crete if a man will not rest in his grave they dig up the body, ferry it across to a little island, and bury it there.⁵ The Kythniotes in the Archipelago have a similar custom, except that they do not take the trouble to bury the body a second time, but simply tumble the bones out of a bag and leave them to bleach on the rocks, trusting to the "silver streak" of sea to imprison the ghost.⁶ In many parts of Germany, in modern Greece, and in Cyprus, water is poured out behind the corpse as it is being carried from the house, in the belief that, if the ghost returns, he will not be able to cross it.⁷ Sometimes, by night, the Germans pour holy water before the door; the ghost is then thought to stand and whimper on the further side.⁸ The inability of spirits to cross water might be further illustrated by the Bagman's ghastly story in Apuleius, the Goblin Page in the "Lay of the Last Minstrel," the witch in "Tam O'Shanter," and other instances.⁹

¹ Monier Williams, "Religious Life and Thought in India," pp. 283, 288.

² Ralston, *loc. cit.*

³ D. J. Lassen Rasmussen, "Additamenta ad historiam Arabum ante Islamismum," p. 67.

⁴ K. Haupt, "Sagenbuch der Lausitz," I, p. 254.

⁵ B. Schmidt, "Das Volksleben der Neugriechen," p. 163.

⁶ J. T. Bent, "The Cyclades," p. 441 *seq.*

⁷ A. Kuhn, "Märkische Sagen," p. 368; Temme, "Volksagen der Altmark," p. 77; Nork, "Sitten und Gebräuche der Deutschen und ihrer Nachbarvölker," p. 479; Wuttke, § 737; Rochholz, I, p. 177; Lammert, "Volksmedizin," p. 105; Töppen, "Aberglauben aus Masuren," p. 108; Panzer, "Beitrag zur deutschen Mythologie," I, p. 257; "Folk-lore Journal," II, p. 170; Wachsmuth, "Das alte Griechenland im neuen," p. 119; cf. Tettau und Temme, "Die Volkssagen Ostpreussens, Litthauens und Westpreussens," p. 286.

⁸ Wuttke, "Deutscher Aberglaube," § 748; Rochholz, "Deutscher Glaube und Brauch," I, p. 186.

⁹ Apuleius, "Metam.," i, 19, cf. 13; "Lay of the Last Minstrel," iii, 13. Cf. Giraldus Cambrensis, "Topographie of Ireland," c. 19; Grimm, "Deutsche Mythologie," III, p. 434; Theocritus xxiv, 92; Homer, "Odys.," xi, 26 *sqq.*; Henderson's "Folk-lore of the Northern Counties," p. 212. Observe that the inability of spirits to cross water is not absolute, but is strictly analogous to that of living men. The souls, like the bodies of men, can cross water by a boat or bridge, or by swimming. For instances of the soul of the sleeper leaving his body and crossing a brook by means of a sword laid across it, see Paulus, "Historia Langobardorum," iii, c. 34; Grimm, "Deutsche Sagen," 431. Again the souls of the dead regularly pass by bridge or boat the River of Death,

Another way of enforcing the water barrier is to plunge into a stream, in the hope of drowning, or, at least, washing off, the that sombre stream which has flowed in the imagination of so many nations of the world. For evidence see Grimm, "Deutsche Mythologie," p. 692 *sqq.*; K. Simrock, "Handbuch der deutschen Mythologie," p. 255 *sqq.*; Rochholz, "Deutscher Glaube und Brauch," I, p. 173 *sqq.*; Tylor, "Primitive Culture," II, p. 94; Brinton, "Myths of the New World," p. 265 *sqq.*; B. Schmidt, "Das Volksleben der Neugriechen," p. 236 *sqq.*; Sonntag, "Totdenbestattung," p. 164; Bancroft, "Native Races," III, pp. 519, 538, 543; Ralston, "Songs of the Russian People," p. 107; Monier Williams, "Religious Thought and Life in India," p. 290; Dennys, "Folk-lore of China," p. 24. Amongst the Kasi Indians, when the funeral happens to pass a puddle, they lay a straw over it for the soul of the dead man to use as a bridge (Dennys, *loc. cit.*). Polynesian ghosts can swim (Bastian, "Die heilige Sage der Polynesier," p. 52; Turner, "Nineteen Years in Polynesia," p. 235). On the other hand the idea of a journey by land appears in the Norse, German, Prussian, and Californian custom of shoeing the dead (Grimm, "Deutsche Mythologie," II, p. 697; K. Simrock, *op. cit.*, p. 127; K. Weinhold, "Altnordisches Leben," p. 494; Dasent, "Burnt Njal," I, p. cxxii; Rochholz, I, p. 186; Sonntag, "Totdenbestattung," p. 171; Töppen, "Aberglaube aus Masuren," p. 107; Bancroft, "Native Races," I, p. 569; Brinton, "Myths of the New World," p. 250). In Bohemia, on the contrary, no shoes are put in the grave, because, if they were, the ghost would be obliged to walk the earth till they were worn out (Grohmann, "Aberglauben," &c., p. 197). The custom of placing a coin in the mouth of the corpse has prevailed in ancient Greece (Lucian, "De Luctu," 10), ancient Italy (Marquardt, "Das Privatleben der Römer," I, p. 338 *sq.*), amongst the Franks (K. Weinhold, "Altnordisches Leben," p. 493); in modern Greece, Thessaly, Macedonia, Asia Minor (Wachsmuth, "Das alte Griechenland im neuen," p. 117 *sqq.*; B. Schmidt, "Das Volksleben der Neugriechen," p. 236 *sqq.*), Albania (Hahn, "Albanesische Studien," I, p. 151), France (Vrêto, "Mélanges Neohelléniques," p. 30, referred to by B. Schmidt, *loc. cit.*), Germany (Grimm, "Deutsche Mythologie," II, p. 694, *id.* III, p. 441; Wuttke, "Deutscher Aberglaube," § 734; F. Schmidt, "Sitten und Gebräuche in Thüringen," p. 91; Rochholz, I, 189 *sqq.*), Burma (Forbes, "British Burma," p. 93; "The Burman," by Shway Yoe, II, p. 338), Lao (C. Bock, "Temples and Elephants," p. 361), among the Kakhyens (J. Anderson, "Mandalay to Momien," p. 143), in China (Gray, "China," I, p. 281), among the Hindus (Monier Williams, "Religious Thought and Life," p. 296), Madagas of Southern India (Marshall, "Travels among the Todas," p. 172), and in Yucatan (Bancroft, "Native Races," II, p. 800). The idea that this money in the dead man's mouth is to pay the ferry across the River of Death occurs in Italy, Greece, Asia Minor, Germany, Burma, among the Kakhyens, and in Yucatan. In Asior Minor the money is called *περῆτικιον*, in Burma *Kādo ākāh*, both meaning "ferry-money," like the old Greek *ναῦλον*, *πορθήμιον*. (At Komiakè in Naxos the old name *ναῦλον* is still retained, but it is applied, not to a coin, but to a little wax cross placed on the lips of the corpse. Bent, "The Cyclades," p. 363). In Arachoba on Parnassus it is thought to be a bridge-toll, an idea probably imported into Greece by the Turks, as Schmidt suggests. In some parts of Germany the notion is that if the deceased has hidden a treasure the coin in his mouth will prevent him returning. In Lao it is to pay a fine in the spirit-world. The Hindus suppose that it keeps at bay the ghostly ministers of death; hence it is inserted in the mouth of the dying, and to make sure of having it in the hour of need a Hindu in good health will have gold inserted in his teeth. In Corea the mouth of the dead is filled with boiled *whangmi*, three holeless pearls, and a piece of jade (J. Ross, "History of Corea," p. 324 *sq.*). In Tonquin the common people put three grains of rice in the mouth of the corpse; wealthy families put one or more precious stones (J. G. Scott, "France and Tongking," p. 97); Baron tells us that persons of quality put small pieces of gold and silver together with seed pearls, in the belief that this would secure the spirit respect in the other

ghost. Thus among the Matamba negroes a widow is bound hand and foot by the priest, who flings her into the water several times over, with the intention of drowning her husband's ghost, who may be supposed to be clinging to his unfeeling spouse.¹ In Angola, for a similar purpose, widows adopt the less inconvenient practice of ducking their late husbands.² In New Zealand all who have attended a funeral betake themselves to the nearest stream and plunge several times head under, in the water.³ In Fiji the sextons always washed themselves after a burial.⁴ In Tahiti all who had assisted at a burial fled precipitately and plunged into the sea, casting also in the sea the garments they had worn.⁵ All who had helped to bury a king of Michoacan bathed afterwards.⁶ Amongst the Mosquito Indians all persons returning from a funeral undergo a lustration in the river.⁷ In Madagascar the chief mourner returning from the funeral immediately washes himself.⁸ In North Guinea, after a corpse has been buried, the bearers rush to the water and wash themselves thoroughly before they return to the town.⁹

But the barrier by water, like the barrier by fire, often dwindled into a mere stunted survival. Thus, after a Roman funeral it was enough to carry water three times round the persons who had been engaged in it and to sprinkle them with

world and save him from want ("Description of the Kingdom of Tonqueen" in Pinkerton's "Voyages and Travels," ix, p. 698). In China the things inserted in the mouth vary in value with the rank of the deceased; grains of paddy or seeds of three different kinds are sometimes inserted. In Yucatan corn as well as money is put in the mouth. In Wallachia the coin is placed in the hand of the corpse (Schott, "Wallachische Mährechen," p. 302); and so in Masuren, where the dead is at the same time addressed in these words, "Now you have got your pay, so don't come back again" (Töppen, "Aberglauben aus Masuren," p. 108). The Slavonians used to put money in the grave to pay the passage of the spirit across the Sea of Death, and Russian peasants at a funeral still throw small coins into the grave (Ralston, "Songs of the Russian People," p. 107 sq.); the coin is sometimes put in the hand of the corpse (*ib.*, p. 315). The Norsemen also put a piece of money in the grave (Weinhold, *loc. cit.*). The original custom may have been that of placing food in the mouth, for which in after times valuables (money or otherwise) were substituted, that the dead might buy his own food.

¹ Sonntag, "Todtenbestattung," p. 113.

² *ib.*, p. 115.

³ Yate, "New Zealand," p. 137; Taylor, "New Zealand and its Inhabitants," p. 224.

⁴ T. Williams, "Fiji and the Fijians," I, p. 191.

⁵ Ellis, "Polynesian Researches," I, p. 403.

⁶ Bancroft, "Natives Races," II, p. 621.

⁷ *ib.* I, p. 744.

⁸ Ellis, "History of Madagascar," I, p. 238.

⁹ J. L. Wilson, "Western Africa," c. 17 (p. 171 of the German translation. I have not seen the original. The English of this passage is given in Gardner's "Faiths of the World," I, p. 938).

the water.¹ Modern Jews, as they leave the graveyard, wash their hands in a can of water placed at the gate; before they have done so they may not touch anything, nor may they return to their houses.² In modern Greece, Cappadocia, and Crete, persons returning from a funeral wash their hands.³ In Samoa they wash their faces and hands with hot water.⁴ In ancient India it was enough merely to touch water.⁵ In China, on the fifth day after a death, the mourners wash their eyes and sprinkle their faces three times with water.⁶ In ancient Greece, so long as a corpse was in the house a vessel of water stood before the street-door, that all who left the house might sprinkle themselves with it.⁷ Note that in this case the water had to be fetched from another house, water taken from the house in which the corpse lay would not do. The significance of this fact I shall have occasion to point out presently.

When considered along with the facts I have mentioned, it can hardly be doubted that the original intention of this sprinkling with water was to wash off the ghost who might be following from the house of death; and, in general, I think we may lay down the rule that wherever we find a so-called purification by fire or water from pollution contracted by contact with the dead, we may assume with much probability that the original intention was to place a physical barrier of fire or water between the living and the dead, and that the conceptions of pollution and purification are merely the fictions of a later age, invented to explain the purpose of a ceremony of which the original intention was forgotten. The discussion of the wider question, whether all forms of so-called purification may not admit of an analogous explanation, must be reserved for another occasion. Here I will merely point to two kinds of purification which are most obviously explicable on the hypothesis that they are modes of barring spirits. The first of these is the purification for manslaughter. The intention of this ceremony was probably to rid the slayer of the vengeful spirit of the slain, the ghosts of all persons who come by a violent end being especially vicious. In accordance with this view we find purification exacted when the slain man was

¹ Virgil, "*Æneid*," vi, 228. Servius on this passage speaks of carrying *fire* round similarly.

² Bodenschatz, "*Die Kirchliche Verfassung der heutigen Juden*," iv, p. 175.

³ Wachsmuth, "*Das alte Griechenland im neuen*," p. 120; Bent, "*The Cyclades*," p. 221.

⁴ Turner, "*Samoa*," p. 145.

⁵ Monier Williams, "*Religious Life and Thought in India*," pp. 283, 288.

⁶ Gray, "*China*," I, p. 305.

⁷ Pollux, viii, 65; Hesychius and Suidas, s.v. ἀρδάνιον; cf. Wachsmuth, *op. cit.*, p. 109.

an enemy of the tribe as well as when he was a member of it. Thus when a Pima Indian slays an Apache, he has to undergo a strict and solitary purification in the woods for sixteen days.¹ Similarly, Bechuana warriors returning from battle wash themselves and their weapons with solemn ceremony.² Again, since the savage has no hesitation in deciding affirmatively the question whether animals have souls, purification is found to be practised for the slaughter of beasts as well as of men. Thus a Damara hunter returning successful from the chase takes water in his mouth and ejects it three times over his feet and also in the fire of his own hearth.³ Amongst the Koossa Kaffirs the first man who receives a wound in a fight with a lion is made "unclean" by it, though at the same time he is regarded as a hero. The idea plainly is, that by wounding this man first the lion showed that he had an especial grudge at him, and this grudge the lion's ghost will not be likely to forget. Hence, following the usual Kaffir mode of purification, the man is shut up in a small hut, away from every one else for four days, after which he is purified; and, having now given the slip to the ghost, he is marched back to the village, surrounded by a guard of honour.⁴ My interpretation of this custom will not seem extravagant when we remember the punctilious politeness with which a savage treats the spirits of the beasts he has killed.⁵ The second kind of purification to which I will here refer is the passing of men and cattle through the need-fire during the prevalence of a plague. This custom is explained most simply by supposing that people thereby intended to interpose a barrier between themselves and their cattle on the one side and the maleficent spirits of the plague on the other.⁶ One more kind of purification—that of women after childbirth—will be referred to in the course of this paper.

Such, then, are some of the modes of excluding or barring the ghost. Before quitting the subject, however, I wish to observe that as the essence of these proceedings was simply the erection of a barrier against the disembodied spirit, they might be, and actually were, employed for barring spirits in other connections. Thus, for example, since to early man death means the

¹ Bancroft, "Native Races," I, p. 553. For the enmity of the Pimas and Apaches, see *id.* p. 542.

² G. Fritsch, "Die Eingeborenen Süd-Afrika's," p. 201.

³ C. J. Andersson, "Lake Ngami," p. 224.

⁴ Lichtenstein, "Travels in Southern Africa," I, p. 257 *sq.*

⁵ Tylor "Primitive Culture," I, p. 468 *sq.*

⁶ See Grimm, "Deutsche Mythologie," p. 503, *sqq.*; Tylor, "Early History of Mankind," p. 256 *sq.*; W. Mannhardt, "Der Baumkultus der Germanen und ihrer Nachbarstämme," p. 518 *sqq.*; U. Jahn, "Die deutschen Opfergebräuche bei Ackerbau und Viehzucht," p. 26 *sqq.*

departure of the soul out of the body, it is obvious that the very same proceedings which serve to exclude the soul after it has left the body, *i.e.*, to bar the ghost, may equally well be employed to bar the soul *in* the body, *i.e.*, to prevent its escaping; in other words, they may be employed to prevent a sick man from dying, in fact they may be used as cures. Thus the Chinese attempt to frighten back the soul of a dying man into his body by the utterance of wild cries and the explosion of crackers, while they rush about with extended arms to arrest its progress.¹ The use of water as a cure is perhaps best illustrated by the Circassian treatment of the sick. It is well known that according to primitive man the soul of a sleeper departs from his body to wander far away in dreamland; indeed the only distinction which early man makes between sleep and death is that sleep is a temporary, while death is a permanent absence of the soul. Obviously then, on this view, sleep is highly dangerous to a sick man, for if in sleep his soul departs, how can we be sure that it will come back again? Hence in order to ensure the recovery of a sick man one of the first requisites is to keep him from sleeping. With this intention the Circassians will dance, sing, play, and tell stories to a sick man by the hour. Fifteen to twenty young fellows, naturally selected for the strength of their lungs, will seat themselves round his bed, and make night hideous by singing in chorus at the top of their voices, while from time to time one of them will create an agreeable variety by banging with a hammer on a ploughshare which has been thoughtfully placed for the purpose by the sick man's bed. But if, in spite of these unremitting attentions, the sick man should have the misfortune to fall asleep—mark what follows—they immediately dash water over his face.² The intention of this latter proceeding can hardly be doubtful: it is a last effort to stop the soul about to take flight for ever.³ So among the Abipones, a dying man

¹ Hue, "L'Empire Chinois," II, p. 241 *sqq.*

² Klemm, "Culturgeschichte," IV, p. 34 *sq.*

³ The reason for throwing water on the face is that the soul is usually thought to issue either by the mouth or the nose. The Romans, Franks, Germans, English, Slavonians, Mexicans, and Quichés believed that it issued through the mouth (Ovid, "Met.," xii, 424 *sq.*, where the man is dying of a wound in the breast; Paulus, "Historia Langobardorum," iii, 34; Wuttke, "Deutscher Aberglaube," § 60; Grimm, "Deutsche Mythologie," p. 690 *sq.*; *id.*, "Deutsche Sagen," 461; Dyer, "English Folk-lore," p. 214; Grohmann, "Aberglauben und Gebräuche aus Böhmen und Mähren," pp. 60, 194; Tylor, "Primitive Culture," II, p. 29; Bancroft, "Native Races," III, p. 315, *cf.* II, p. 799). The ancient Greeks believed that the soul issued through the mouth or through a gaping wound (Homer, "Iliad," ix, 409; xiv, 518; xvi, 505; *cf.* Buchholz, "Die Homerischen Realien," II, ii, 284 *sqq.*). The modern Greeks believe that Charos, the Death-god, draws the soul out of the mouth; but if the man is wicked or resists his fate, Charos (so say the Arachobites) cuts open his breast with a sword, for the soul has its seat

is surrounded by a crowd of old crones brandishing rattles, stamping and yelling, while every now and then one of them

under the left breast (B. Schmidt, "Das Volksleben der Neugriechen," p. 228 *sq.*). The Jews, Arabs, and Battas of Sumatra believe that the soul issues through the nostrils (Bastian, "Mensch," II, p. 322; *id.*, "Die Seele," p. 52; Marsden, "History of Sumatra," p. 386); but if a man dies of a wound, the Arabs (like the Homeric Greeks) believe that the soul escapes through the wound (communicated by Professor Robertson Smith). The Tonquinese used to throw a handkerchief over the face of the dying in order to catch his soul (Richard's "History of Tonquin," in Pinkerton's "Voyages and Travels," ix, p. 730). The modern Tonquinese hang a film of cotton before the nostrils by a silken thread (J. G. Scott, "France and Tongking," p. 96. Mr. Scott supposes that this is to verify the fact of death. It is possible that the old custom may have been thus rationalised). The inhabitants of the Marquesas Islands are apparently of opinion that the soul may pass out indifferently either by the nose or the mouth, for when a man is at his last gasp the nearest relative holds both the nose and the mouth of the dying man with the kind intention of preventing the escape of the soul (Waitz, "Anthropologie," vi, p. 397). Among the Seminoles of Florida, when a mother died in childbirth, the baby was held over her face to receive her parting spirit (Brinton, "Myths of the New World," p. 271). But the soul has other gateways or posterns. The Chuwasché think that it goes out at the back of the head (Bastian, "Mensch," II, p. 322). The Tibetans believe that it issues by the top of the head, but its escape has to be facilitated by cutting off a lock of hair from the crown of the head; this is done by a lama (Orazio della Penna di Billi, "Brief Account of the Kingdom of Tibet," in Bogle and Manning's "Tibet," p. 338 *sq.*; *cf.* Meiners, "Geschichte der Religionen," II, p. 726 *sq.*). A similar theory is revealed by the practice of the Kánikárs (a hill tribe of Travancore); when a man is sick to death, his top-knot is cut off by the headman of the village, and his friends then take their last farewell of him (Samuel Mateer, "Native Life in Travancore," p. 68). The Greeks and Romans appear to have had at one time the same belief and custom (Euripides, "Alcestis," 74 *sqq.*, 101 *sq.*; Virgil, "Æneid," iv, 698 *sqq.*; *cf.* Macrobius, "Saturn," V, 19. The lock so cut off may be that referred to in "Etymologicum Magnum," *s.v.* ἀπεσκολυμμένος. κολλὺς γὰρ ἡ θρίξ ἡ ἐπὶ τοῦ ἄκρου, ἣν ἐφύλαττον ἀκούρευον, θεοῖς ἀνατιθέντες), and we may perhaps say the same of the Canadian Indians, for when one of them died a lock from his head was cut off and presented to the nearest relative ("Relations des Jésuites," 1634, p. 24; *cf.* Lafitau, "Mœurs des Sauvages Américains," II, p. 409). This lock may have been the scalp-lock which it was a point of honour to leave unshorn that the conqueror might cut it off as a trophy (Catlin, "North American Indians," II, p. 24). The Tahitians believed that at death the soul was drawn out of the head by a god (Ellis, "Polynesian Researches," I, p. 396—the part of the head is not specified). Amongst the Kalmucks an incision is sometimes made in the skin to enable the soul to escape (Bastian, "Mensch," II, p. 342, *cf.* 343). In Macassar for a similar purpose the priest rubs the middle finger of the dying man, because the soul has its seat there (*ib.*, p. 322). The Hindu belief (as set forth in the Garuḍa-purāṇa) is that the soul of a bad man goes downwards and emerges like the excreta, but that the soul of a good man issues through a suture at the top of the skull. Hence the skull of the corpse is cracked with a cocoa-nut or a piece of sacred wood to let out the soul. Professor Monier Williams heard of a sorcerer at Lahore who made it his business to collect skulls which had not been properly cracked and so retained the souls of the deceased inside (Monier Williams, "Religious Thought and Life in India," pp. 291, 297, 299; Bastian, "Die Seele," p. 30). The Nasairiens believe that when a man is hanged his soul cannot pass out through the mouth; hence they will give the Turks large sums for the privilege of being impaled instead of hung (Bastian, "Mensch," II, p. 322). On the belly of an old Esquimaux, Ross remarked an incision which had been clearly made after death, but the reason

flings water over his face so long as there is breath left in his body.¹ The same practice of throwing water over or washing the sick, is observed also in China, Siam, Siberia, Hungary, Ruthenia, Carniola, and amongst the Koossas of South Africa.²

By analogy, the origin of the Kaffir custom of kindling a fire beside a sick person,³ the Russian practice of fumigating him,⁴ and the Persian practice of lighting a fire on the roof of a house where any one is ill,⁵ may perhaps be found in the intention of interposing a barrier of fire to prevent the escape of the soul. For with regard to the custom of lighting a fire on the roof, it is a common belief that spirits pass out and in through a hole in the roof.⁶ In the same way I would explain the extraordinary custom in Lao and Siam of surrounding a mother after childbirth with a blazing fire, within or beside which she has regularly to stay for weeks after the birth of the child.⁷ The

of which he could not ascertain (Klemm, "Culturgeschichte," II, p. 225); it may have been made to allow the soul to escape. For the soul is sometimes represented as lodged in the belly; so at Smyrna they say "my soul aches," meaning their belly aches, and a stomach plaster is dignified by the name of *ἀντρίβυχο* (B. Schmidt, "Das Volksleben der Neugriechen," p. 229).

¹ Dobritzhofer, "Account of the Abipones, II, p. 266. Amongst the Indians of California, if a sick man falls asleep they knock him about the head till he wakes, with the sincere intention of saving his life (Baneroff, "Native Races," I, p. 569). Kaffirs, when circumcised at the age of fourteen, are not allowed to sleep till the wound has healed (Campbell, "Travels in South Africa," p. 514). In Venice, when a woman has given birth to a child, a female attendant stays by her for some hours in order to keep her from sleeping, and to drive off a certain witch called Pagana (Gubernatis, "Storia comparata degli usi natalizi in Italia e presso gli altri popoli Indo-Europei," p. 147).

² Gray, "China," I, p. 278; Pallegoix, "Siam," I, p. 294; Bowring, "Siam," I, p. 121; Klemm, "Culturgeschichte," X, p. 254; "Folk-lore Journal," II, p. 102; Ralston, "Songs of the Russian People," p. 315; Wood, "Natural History of Man," I, p. 189; Lichtenstein, "Travels in Southern Africa," I, p. 258. In Thrice a wet shirt is put on the patient ("Folk-lore Journal," I, p. 167).

³ Lichtenstein, *loc. cit.*

⁴ Ralston, "Songs of the Russian People," p. 380.

⁵ Klemm, "Culturgeschichte," VII, p. 142.

⁶ Rochholz, "Deutscher Glaube und Brauch," I, p. 172; Wuttke, "Deutscher Aberglaube," §§ 725, 755; Bastian, "Mensch," II, pp. 319, 323; *id.*, "Die Seele," p. 15; Ralston, "Songs of the Russian People," p. 314; J. T. Bent, "The Cyclades," p. 437; Dennys, "Folk-lore of China," p. 22; Lammert, "Volksmedizin," p. 103; B. Schmidt, "Das Volksleben der Neugriechen," p. 149; "Relations des Jésuites," 1634, p. 23. On the Slave Coast the roof of the house is often taken off after a death (P. Bouche, "La Côte des Esclaves," p. 214).

⁷ Carl Bock, "Temples and Elephants," p. 259 *sq.*; Pallegoix, "Siam," I, p. 223; Bowring, "Siam," I, p. 120. In Burma a similar custom prevails, but the time is shorter, about seven days (Forbes, "British Burma," p. 66; "The Burman," by Shway Yoe, I, p. 1 *sq.*) Amongst the modern Persis a fire should be kept up three days and nights after the birth of the child (J. Darmesteter, "Zend-Avesta," I, p. xciii). In Madagascar a fire is kept up in the room day and night frequently for a week after the birth (Ellis, "History of Madagascar," I, p. 151, *cf.* p. 149). It appears that it is only in Lao and Abyssinia that the fire actually surrounds the bed, and in Lao it is not kept up constantly, but is repeated day after day. But

object, I take it, is to hem in the fluttering soul at this critical period with an impassable girdle of fire. In Abyssinia immediately after the birth the woman is laid on a wooden bed, which is surrounded by blazing herbs, and here she is held fast by stout young fellows.¹

Conversely, among the Kaffirs a widow must stay by herself beside a blazing fire for a month after her husband's death, no doubt in order to get rid of his ghost.² If any confirmation of this interpretation of the Siamese practice were needed, it would seem to be found in the fact that, during her imprisonment within the fiery circle, the woman washes herself daily for a week with a mixture of salt and water,³ for salt, or salt and water, is a regular specific against spirits.⁴

Another of these two-edged weapons which can be used

putting the intermittent circular fire of Lao beside the continual side fire of Siam and Burma, and taking into account the Malagasy, Abyssinian, Scotch, and Albanian practices (see below), we are perhaps justified in inferring that the original form of the custom was a continual and continuous circle of fire. A survival of this custom is seen in the old Scotch practices of whirling a fir-candle three times round the bed on which the mother and child lay (C. Rogers, "Social Life in Scotland," I, p. 135), and of carrying fire morning and night round the mother till she was churched, and the child till it was christened (Martin's "Description of the Western Islands of Scotland," in Pinkerton's "Voyages and Travels," III, p. 612). In Sonnenberg a light must be kept constantly burning after the birth, or the witches will carry off the child (A. Schleicher, "Volksthümliches aus Sonnenberg," p. 144). Amongst the Albanians a fire is kept constantly burning in the room for forty days after the birth; the mother is not allowed to leave the house all this time, and at night she may not leave the room; and any one during this time who enters the house by night is obliged to leap over a burning brand (Hahn, "Albanesische Studien," I, p. 149). In the Cyclades no one is allowed to enter the house after sunset for many days after birth (Bent, "The Cyclades," p. 181), and in modern Greece generally the woman may not enter the church for forty days after the birth (Wachsmuth, "Das alte Griechenland im neuen," p. 73 sq.; Bent, *op. cit.*, p. 180), just as in ancient Greece she might not enter a temple during the same period (Censorinus, "De die natali," xi, 7). For similar restrictions in many parts of the world, see Gubernatis, "Usi natalizi," c. 14, and especially Ploss, "Das Kind in Brauch und Sitte der Völker," I, p. 49 sqq.; *id.*, "Das Weib in der Natur-und-Völkerkunde," II, p. 434 sqq.

¹ Ploss, "Das Weib," II, p. 434.

² Lichtenstein, "Travels in Southern Africa," I, p. 259. This too is probably the object of the dreadful ordeal through which widows among the Minas on the Slave Coast have to pass. After being shut up for six months in the room where their husband is buried, they receive a severe beating and undergo an agonising fumigation, after which they bathe in the sea (P. Bouche, "La Côte des Esclaves," p. 218 sq.).

³ Bock, *op. cit.*, p. 260.

⁴ Amongst the Moors of Morocco when a person goes from one room to another in the dark he carries salt in his hand as a protection against ghosts (A. Leared, "Morocco and the Moors," p. 275). For other "spiritual" uses of salt, see W. G. Black, "Folk-Medicine," p. 131; Henderson, "Folk-lore of the Northern Counties," p. 53; Brand, "Popular Antiquities," II, p. 234 sq.; Wuttke, "Deutscher Aberglaube," §§ 118, 733; Rochholz, "Deutscher Glaube und Brauch," I, p. 186; Strackerjan, "Aberglaube und Sagen aus dem Herzogthum Oldenburg," § 232; Theocritus, xxiv, 95 sq. Salt is said to be particularly distasteful to the Devil (Moresin and Reginal Scott, quoted by Brand, *loc. cit.*).

either to save the soul of the dying or to repel the ghost of the dead in fine clothes. We saw that the corpse is dressed in his best clothes in order to save the ghost the trouble of coming to fetch them. Conversely when a Mongol is sick and like to die, all his finery is spread round about him in the hope of tempting the truant soul back to its deserted tabernacle, while a priest in full canonicals reads aloud a list of the pains and penalties of hell and of the risks run by souls which wilfully absent themselves from their bodies.¹ Thus, placed on the dying, fine clothes are a bait to lure the soul back; placed on the dead, they are a bribe to it to stay away. The same custom of dressing a dying person in fine clothes is observed by the Chinese, the Todas of Southern India, and the Greenlanders.²

Of course it is possible that the fiery barriers described above may also be intended to keep off evil spirits, and this is the second supplementary use to which the proceedings for barring ghosts may be turned. This would appear to have been the object with which, in Siberia, women after childbirth leaped several times over a fire,³ exactly as we saw that in Siberia mourners returning from a funeral leap over a fire for the express purpose of shaking off the spirit of the dead.

In China, the streets along which a funeral is to pass are previously sprinkled with holy water, and even the houses and warehouses along the street come in for their share, in case some artful demon might be lurking in a shop, ready to pounce out on the dead man as he passed.⁴ Special precautions are also taken by the Chinese during the actual passage of the funeral; in addition to the usual banging of gongs and popping of crackers, an attempt is made to work on the cupidity of the demons. With this view, bank-notes are scattered, regardless of expense, all along the road to the grave. The notes, I need hardly observe, are bad, but they serve the purpose, and while the ingenuous demons are engaged in the pursuit of these deceitful riches, the soul of the dead man, profiting by their distraction, pursues his way tranquilly behind the coffin to the grave.⁵

¹ Bastian, "Die Seele," p. 36.

² Gray, "China," I, p. 278; Marshall, "Travels among the Todas," p. 171; Crantz, "Greenland," I, p. 237.

³ Meiners, "Geschichte der Religionen," II, p. 107. Women before and after childbirth are thought to be especially exposed to the influence of malignant spirits.

⁴ Gray, "China," I, p. 299. The custom of closing the houses and shops before which a funeral passes (such as prevails in modern Greece, Wachsmuth, "Das alte Griechenland im neuen," p. 120) may have originally been meant to exclude the ghost.

⁵ Hue, "L'Empire Chinois," II, p. 249 sq.; Gray, *loc. cit.*; Doolittle, "Social Life of the Chinese," p. 153 (ed. Paxton Hood). There is a popular impression

A similar custom is observed in Corea.¹

In Annam it is the restless spirits of the unburied dead (Co-hon) who lie in wait for funerals. To appease them sham gold and silver leaf are strewed about the road to the grave, and occasionally sheets of paper are burned containing pictures of everything that the most exacting ghost could desire, coats, boots, &c., together with prayers to the saints that they would be pleased in mercy to take away these weary wanderers of earth to the eternal peace of heaven.²

In the Hervey Islands, in the South Pacific, after a death the ghosts or demons are fought and soundly pummelled by bodies of armed men, just as the Samogitians and old Prussians used to repel the ghostly squadrons by sword-cuts in the air.³ New weapons, again, may be turned to old purposes, as when a Kalhyen is borne to his last resting-place amid a rolling fire of musketry.⁴

In Christian times bells have been used to repel evil spirits; this, of course, was the intention of the passing bell.⁵ In

that the ghost is always in the coffin. This, however, is an error. Huron ghosts, broadly speaking, walk in front of the coffin ("Relations der Jésuites," 1636, p. 10), Chinese ghosts (as we have just seen) walk behind it, while some Prussian ghosts exhibit a marked preference for riding on the top of it (Töppen, "Abeglauben aus Masuren," p. 108; on the next page we read of the ghost following the corpse). The Coreans place a chair beside the corpse for the ghost to sit on (J. Ross, "History of Corea," p. 326). In Wallendorf, when the father of the family dies and the corpse is being carried out of the house, they place a chair and a towel for the convenience of the ghost (Töppen, *op. cit.*, p. 11). Some Negro ghosts in North Guinea are undoubtedly in the coffin, for they struggle in it as they are being carried to the grave, and the bearers have the greatest difficulty in running them in (J. L. Wilson, "Western Africa," c. 17. Can this be the origin of the custom which the Burmese have of dancing with the coffin on their shoulders every now and then on the way to the grave? (Forbes, "British Burma," p. 95 sq.; "The Burman," by Shway Yoe, II, p. 342).

¹ Ross, "History of Corea," p. 319.

² J. G. Scott, "France and Tongking," pp. 99, 101 sqq. If the "prowling devil" for whose special benefit the funeral is preceded by men with sticks are identical with the Co-hon, it would appear that the Annamese have not a robust faith in the unassisted efficacy of prayer.

³ Hill, "Myths and Songs from the South Pacific," p. 269; Bastian, "Mnesh," II, p. 341.

⁴ J. Anderson, "Mandalay to Momien," p. 143. In Tonquin a great army used annually to muster and open a terrific fire of artillery and small arms on the ghosts (Baron's "Description of the Kingdom of Tonqueen," in Pinkerton's "Voyages and Travels," ix, p. 696).

⁵ Brand, "Popular Antiquities," II, p. 202; Forbes Leslie, "Early Races of Scotland," II, p. 503. In Neusohl (North Hungary) the use of the bell is somewhat peculiar. When a sick man is near his end, they ring a little bell at his head, that the parting soul may linger a little to listen to the chime. When the man is dead, they still ring the bell, but go further and further off, then out of the door, and round about the house, still ringing the bell. A message is then sent that the church bell may begin to toll. (Th. Vernalecken, "Mythen und Sagen des Volkes in Oesterreich," p. 311.) There is or was a similar custom in

Scotland funerals used to be preceded by a man ringing a bell.¹ The idea that the sound of brass or iron has power to put spirits to flight prevailed also in classical antiquity, from which it may have been inherited by mediæval Christianity.² We may perhaps see the germ of the passing bell in the kettle which the Spartan women beat up and down the streets on the death of a king.³ The Moquis of Arizona exorcise evil spirits by the ringing of bells;⁴ and at Port Moresby, in New Guinea, when the church bell was first used, the natives returned thanks to the missionaries for having driven away the ghosts.⁵

I have still one observation to make on the means employed to bar ghosts, and it is this. The very same proceedings which were resorted to *after* the burial for the purpose of barring the ghost were *avoided* so long as the corpse was in the house, from fear, no doubt, of hurting and offending the ghost. Thus we saw that an axe laid on the threshold or a knife hung over the door have power, after the coffin has been carried out, to exclude the ghost, who could not enter without cutting himself. Conversely, so long as the corpse is still in the house, the use of sharp-edged instruments should be avoided in case they might wound the ghost. Thus for seven days after a death, the corpse being still in the house, the Chinese refrain from the use of knives and needles, and even of chopsticks, eating their food with their fingers.⁶ So at the memorial feasts to which they invited the dead, the Russians ate without using knives.⁷ In Germany and Bohemia a knife should not be left edge upward, lest it hurt the ghosts or the angels.⁸ They even say that if you see a knife on its back and a child in the fire, you should run to the knife before the child.⁹ Again, we saw that the Romans and Germans swept the ghost, without more ado, out of his own house. On the other hand, the negroes on the Congo considerably abstain

Bohemia (Rochholz, "Deutscher Glaube und Brauch," I, p. 179). The object appears to be to drive or lead the ghost out of the house, just as at the *Lemuria* a Roman householder ejected the ghosts by the tinkling of brass (Ovid, "Fasti," V, 441 *sqq.*).

¹ Rogers, "Social Life in Scotland," I, p. 163; E. J. Guthrie, "Old Scottish Customs," p. 140.

² Lucian, "Philopseudes," 15; Ovid, *loc. cit.* Cf. Fritzsche on Theocritus, ii, 36; Prof. Robertson Smith in the "Journal of Philology," vol. xiii, No 26, p. 283, *note*.

³ Herodotus, vi, 58.

⁴ J. G. Bourke, "The Snake Dance of the Moquis of Arizona," p. 258.

⁵ Chalmers and Gill, "Work and Adventure in New Guinea," p. 260.

⁶ Gray, "China," I, p. 288.

⁷ Ralston, "Songs of the Russian People," p. 321.

⁸ Grimm, "Deutsche Mythologie," III, pp. 441, 454; Tettau and Temne, "Volkssagen Ostpreussens Litthauens und Westpreussens," p. 285; Grohman, "Aberglauben," &c., p. 198.

⁹ Grimm, *op. cit.*, p. 469.

for a whole year from sweeping the house where a man has died, lest the dust should annoy the ghost.¹ On the day of the funeral the Albanians refrain from sweeping the place where the corpse lay, though by a curious contradiction some one regularly sits down three times on the spot.² Again, we have seen the repugnance of ghosts to water. Hence when a death took place the Jews used to empty all the water in the house into the street, lest the ghost should fall in and be drowned.³ Similarly in some parts of Calabria (Castrovillari and Nocera) and Germany all the water vessels are emptied at death.⁴ In Burma, when the coffin is being carried out, every vessel in the house that contains water is emptied.⁵ In some parts of Bohemia, after a death, the water-butt is emptied, because if the ghost happened to bathe in it, and any one drank of it afterwards, he would be a dead man within the year.⁶ We can now appreciate the significance of the fact mentioned above, that in Greece the lustral water before the door of a house where a dead body lay had always to be fetched from a neighbouring house.⁷ For if the water had been taken from the house of death, who could tell but that the ghost might be disporting himself in it?⁸ Hence among the Jews all open vessels in the chamber of death were "unclean."⁹ In Pomerania, even *after* a burial, no washing is done in the house for some time lest the dead man should be

¹ Bastian, "Mensch," II, p. 323.

² Hahn, "Albanesische Studien," I, p. 152.

³ Buxtorf, "Synagoga Judaica," pp. 699, 712 (ed. 1712); Bodenschatz, "Kirchliche Verfassung der heutigen Juden," iv, p. 178; J. Allen, "Modern Judaism," p. 435 (ed. 1830); Gardner, "Faiths of the World," I, p. 676. The reason assigned for this custom by the most learned Talmudists is that the water is unclean because the Angel of Death has washed his dripping sword in it. Contrast the vivid spiritualism of this explanation with the vapid rationalism of the view that the emptying of the water is a means of announcing the death. Truly it is vain to bottle the new wine of reason in old customs.

⁴ Vincenzo Dorsa, "La tradizione Greco-latina negli usi e nelle credenze popolari della Calabria citeriore," p. 93; Rochholz, "Deutscher Glaube und Brauch," I, p. 176. On the other hand at San Pietro in Calabria, when a man is dying, all the vessels in the house are filled with water, for the benefit of the thirsty souls of deceased relations who are supposed to gather in the house in order to accompany the spirit of the dying man to the other world (Dorsa, *op. cit.*, p. 92 *sqq.*).

⁵ Forbes, "British Burma," p. 95.

⁶ Grohmann, "Aberglauben," &c., p. 193.

⁷ In modern Greece a vessel with water stands beside the corpse, and all who approach it sprinkle themselves, but the refinements of bringing the water from another house and placing it outside the door appear to be forgotten (Wachsmuth, "Das alte Griechenland im neuen," p. 109).

⁸ In a similar way we may explain the rule in East Prussia, Schleswig, Lausitz, and Voigtland, that while the corpse is in the house nothing should be lent or given out of it (Wuttke, "Deutscher Aberglaube," § 730; Köhler, "Volksbrauch, Aberglauben, Sagen, &c., im Voigtland," p. 441).

⁹ Numbers xix, 15.

wet in his grave.¹ Amongst the old Iranians no moisture was allowed to rest on the bread offered to the dead, for of course if the bread was damp the ghost could not get at it.²

Once more, we saw that fire was a great stumbling-block to ghosts. Hence in Calabria and Burma the fires in the house are extinguished when a death takes place, doubtless (originally) in case they should burn the ghost.³ The same custom used to be observed in the Highlands of Scotland, in Germany, and apparently in Rome.⁴ So in old Iran, no fire was allowed to be used in the house for nine days (in summer for a month) after a death,⁵ and in later times every fire in the Persian empire was extinguished in the interval between the death and burial of a king.⁶

¹ Wuttke, "Deutscher Aberglaube," § 737.

² Spiegel, "Eränische Alterthumskunde," III, p. 705.

³ Vincenzo Dorsa, "La tradizione Greco-latina negli usi e nelle credenze popolari della Calabria citeriore," pp. 20, 88; Forbes, "British Burma," p. 94.

⁴ Brand, "Popular Antiquities," II, p. 235; James Logan, "The Scottish Gaël," II, p. 387; Preller, "Römische Mythologie," II, p. 159; Apuleius, "Metam.," ii, 24; Juvenal, iii, 214, "tunc odimus ignem." In North Germany there is no baking in the house on the day of a death (Kuhn und Schwartz, "Norddeutsche Sagen, Märchen, und Gebräuche," p. 435). The reason of the custom appears to be forgotten in Oldenburg, where the fire is only extinguished when the corpse is carried out (Strackerjan, "Aberglaube und Sagen aus dem Herzogthum Oldenburg," I, p. 154; Wuttke, § 609).

⁵ Vendidad, V, 39 sqq.; Spiegel, "Eränische Alterthumskunde," III, p. 706; W. Geiger, "Ostiranische Kultur im Alterthum," p. 258.

⁶ Diodorus, xvii, 114. On the other hand it has been a common practice to place a light beside the corpse for the convenience of the ghost. But it would appear that people have been somewhat puzzled how to light and warm the ghost without burning him. Thus some modern Jews place a burning candle beside the corpse in order to light the soul; but others maintain that a lighted candle near the body causes acute pain to the disembodied spirit (Gardner, "Faiths of the World," p. 677; Buxtorf, "Synagoga Judaica," p. 699; Bodenschatz, "Kirchliche Verfassung der heutigen Juden," iv, p. 171). In Germany, so long as the body is above ground a light must be kept constantly burning beside it, for which the reason assigned in Voigtland is that the soul may not walk in darkness (Wuttke, "Deutscher Aberglaube," § 729; Köhler, "Volksbrauch im Voigtlande," p. 442; A. Birlinger, "Volksthümliches aus Schwaben," p. 404; F. Schmidt, "Sitten und Gebräuche in Thüringen," p. 87). In England candles used to be burned, beside or on the corpse (Brand, "Popular Antiquities," II, p. 234; Henderson, "Folk-lore of the Northern Counties," p. 54). In Russia a lighted candle is usually placed beside the corpse or in its hand (Ralston, "Songs of the Russian People," p. 314). In modern Greece when a death takes place candles or lamps are immediately lighted and kept burning three days and three nights, for during that time the soul of the deceased is supposed to linger in or to return to the house ("Folk-lore Journal," II, p. 168; Bent, "The Cyclades," p. 221. Cf. Wachsmuth, "Das alte Griechenland im neuen," pp. 107, 108, 119). In China candles are kept burning round the coffin "to light the spirit of the dead on his way," or "to give light to the spirit which remains with the corpse" (Doolittle, "Social Life of the Chinese," p. 126; Dennys, "Folk-lore of China," p. 21; Gray, "China," I, p. 285). In Corea, when an offering is made by night to the corpse lying in the house, a candle is lit that the ghost may see what he is getting (J. Ross, "History of Corea," p. 324. On page 319 it is

This leads me to speak of the custom of fasting after a death. The Jews may eat no flesh and drink no wine so long as the corpse is in the house; they may not eat at all in the same room with the corpse, but if there is only one room in the house they may eat in it if they interpose a screen, so that in eating they do not see the corpse.¹ The Kaffirs are bound to fast from the time of

said that candles are kept burning beside the corpse day and night). Again we hear of fires being lit (generally on the grave) either to warm the ghost or to light him on his way to the spirit world. Thus in the island of Ruk and in some parts of Australia a fire is kept burning on the grave for some time "that the soul may warm himself" (Waitz, "Anthropologie," VI, pp. 686, 807. Cf. Tylor, "Primitive Culture," I, p. 484 note). In Western Africa the Krumen keep up a fire before the house of the deceased "that his spirit may warm itself" (Wood, "Natural History of Man," I, p. 616). In Ashiraland a fire is kept up in the cemetery beside the corpse of a chief for weeks (Du Chaillu, "Journey to Ashango-land," p. 133). The Winnebagoes, Algonkins, and Mexicans kept up a fire on the grave for four nights in order to light the spirit to the other world (Schoolcraft, "Indian Tribes," IV, p. 55; Brinton, "Myths of the New World," p. 257; Longfellow, "Hiawatha," xx). The Mintira kindle a fire on the grave that the ghost may not be cold (Bastian, "Die Seele," p. 110). Those of the Indians near the mouth of the Russian River who bury their dead keep up fires on the grave and make great noises, in order to keep off the evil spirit who lies in wait for the soul (Bancroft, "Native Races," III, p. 523). Some Californian Indians keep a fire burning near the grave for several nights, for which one reason assigned is that it scares away the devil, and another is that it helps to light the ghost in its precarious passage across a greasy pole to heaven (Bancroft, I, p. 357). The maid-servants maintained a fire on the grave of Hruba for three days (K. Schwenk, "Slawische Mythologie," p. 325). The Caribs made a great fire round the grave and sat there addressing speeches to the dead (Rochefort, "Histoire naturelle et morale des Isles Antilles," Rotterdam 1665, p. 567). The Indians of Guiana make a fire on the grave and celebrate a feast there (Im Thurn, "Among the Indians of Guiana," p. 225). The Andaman Islanders make a fire on the grave and leave beside it a shell with water and some article that belonged to the deceased (E. H. Man, "The Aboriginal Inhabitants of the Andaman Islands," p. 76). On Pitt Island, Kingsmill group, in the Pacific, a fire was kept continually burning in the house during all the time (four months to two years) that the corpse was in it (Waitz, "Anthropologie," V, ii, p. 155; Wood, "Natural History of Man," II, p. 382). In Vate or Efat (one of the New Hebrides) a fire was kindled on the grave to enable the soul to rise to the sun; if this was not done, the soul went to the dreary lower regions of Pakasia (Turner, "Samoa," p. 335). In Samoa a number of fires were kept up on the grave of a great chief during the night for ten days after the funeral; in the house where he lay or out in front of it fires were kept up all night. "The common people had a similar custom. After burial they kept a fire blazing in the house all night, and had the space between the house and the grave so cleared that a stream of light went forth all night from the fire to the grave" (Turner, *ib.*, p. 149). The last-mentioned custom may have been meant to show the ghost the way either to or from the grave. To this I shall have to recur shortly. The Aztecs burned the clothing, weapons, and some of the furniture of the deceased, in order that the heat of the fire might protect him against the bitter cutting wind that met him on his way to the land of souls (Klemm, "Culturgeschichte," V, p. 50).

¹ Bodenschatz, "Kirchliche Verfassung der heutigen Juden," iv, p. 177. The Jewish rule is to bury a man the day he dies (*ib.*, p. 172; Buxtorf, "Synagoga Judaica," p. 703). From Buxtorf (*op. cit.*, p. 706) it appears that the prohibition to eat flesh and drink wine extends for seven days after the death.

the death till after the burial,¹ and the same rule is or was observed by certain tribes of North American Indians.² The negroes of the Gold Coast fast long and severely after a death.³ There is a German belief that if any one eats bread while a corpse is in the house his teeth will fall out.⁴ In modern Persia a fast of eight days is observed after a death.⁵ In India a son is allowed only one meal a day during the mourning for his father; a Brahman must continue this fasting for ten days.⁶ According to another authority, a Hindoo family is not allowed to eat so long as a corpse is in the house.⁷ In Corea during the first day of mourning no food is eaten by the family mourners; sons and grandsons of the deceased eat nothing for three, less near relations for two, days.⁸ During the mourning for the Kings of Michoacan no corn was ground, no fires lighted, no business transacted; all the people remained at home and fasted.⁹ When a chief died among the Guaycurus (an Indian tribe of Paraguay), the tribe abstained from eating fish, their principal dainty.¹⁰ Amongst the Mbayas, another South American tribe, the women and slaves refrained from flesh and observed deep silence during mourning.¹¹ The Samoans commonly fasted during mourning; they ate nothing during the day, but had a meal at night.¹² So amongst the Jews the chivalrous David fasted till evening in honour of his gallant enemy Abner¹³—an ancient parallel to the minute guns which in the War of Independence the Americans fired at the close of a desperate battle, when an English General was buried on the field, just as the French guns paid funeral honours to Sir John Moore on the battlefield of Coruña.¹⁴

It might, perhaps, be supposed that this practice of fasting was a direct consequence of the extinction of fires, which, as we have seen, sometimes took place after a death, and there are facts which seem at first sight to favour this supposition. Thus the Chinese, though they are not allowed to cook in the house for

Another authority speaks of a fast from the moment of death till after the burial (J. Allen, "Modern Judaism," p. 439).

¹ Wood, "Natural History of Man," I, p. 220.

² Charlevoix, "Journal Historique," II, p. 108; Waitz, "Anthropologie," III, p. 196.

³ Waitz, "Anthropologie," II, p. 194.

⁴ Wuttke, "Deutscher Aberglaube," § 735, *cf.* 740.

⁵ Meiners, "Geschichte der Religionen," II, p. 702.

⁶ S. C. Bose, "The Hindoos as they are," p. 254.

⁷ Sonnerat, "Reise," I, pp. 74, 79, referred to by Knobel on Numbers xix.

⁸ J. Ross, "History of Corea," p. 322.

⁹ Bancroft, "Native Races," II, p. 622.

¹⁰ Charlevoix, "Histoire du Paraguay," I, p. 73.

¹¹ Klemm, "Culturgeschichte," II, p. 101.

¹² Turner, "Nineteen Years in Polynesia," p. 228; *id.*, "Samoa," p. 145.

¹³ 2 Samuel iii, 35.

¹⁴ Napier, "History of the Peninsular War," I, p. 500.

seven days after a death, are not prohibited from eating food which has been prepared elsewhere; indeed during this time of mourning their wants are regularly supplied by their neighbours.¹ In Florida the family was thus supplied by friends for three months.² On the evening of mourning (which is usually also the evening of the burial, the burial taking place on the day of death) a Jew may not eat his own food, but is supplied with food by his friends.³ Amongst the Albanians there is no cooking in the house for three days after a death, and the family is fed by friends.⁴ The Greeks of the Cyclades consider it wrong to cook or perform household offices in the house of mourning, so friends and relatives bring food and lay the "bitter table," as it is called.⁵ But this explanation will not suit the German superstition that while the passing bell is tolling no one within hearing should eat.⁶ For here the prohibition evidently extends to all the food in the neighbourhood. The key to the solution of this problem will perhaps be found in the Samoan usage. We are told that in Samoa, "while a dead body is in the house, no food is eaten under the same roof; the family have their meals outside or in another house. Those who attended the deceased are most careful not to handle food, and for days were fed by others as if they were helpless infants."⁷ Observe here, firstly, that the objection is not to all eating, but only to eating under the same roof with the dead; and, secondly, that those who have been

¹ Gray, "China," I, p. 287 *sqq.*

² Waitz, "Anthropologie," III, p. 196.

³ Buxtorf, "Synagoga Judaica," p. 707; Bodenschatz, "Kirchliche Verfassung der heutigen Juden," iv, p. 178.

⁴ Hahn, "Albanesische Studien," I, p. 151. Hahn forgot to inquire whether the fires in the house are extinguished, but he inclines to think that they are (*ib.*, p. 199).

⁵ T. H. Bent, "The Cyclades," pp. 197, 221.

⁶ Sonntag, "Todtenbestattung," p. 176. In its present form the superstition applies to the bell which rings for the funeral, but it seems hardly rash to assume that it originally applied to the passing bell. The same belief exists in New England ("Folk-lore Journal," II, p. 24). The reason assigned for the rule in Germany is that if you eat, your teeth will be hollow, in New England that you will have toothache. See next note.

⁷ Turner, *supra cit.* The punishment inflicted by the household god for a violation of this rule was supposed to be baldness and the loss of teeth—a curious coincidence with the reason assigned for the corresponding German and New England rule. The prohibition laid on those who had been in contact with the dead to touch food with their hands was a regular taboo in Polynesia and New Zealand. See Ellis, "Polynesian Researches," I, p. 403; Mariner, "Tonga Islands," I, p. 142 *note*; Polack, "Manners and Customs of the New Zealanders," I, p. 66 *sqq.*; Taylor, "New Zealand," p. 163; "Old New Zealand," by a Pakeha Maori, p. 124 *sqq.* (p. 105 *sqq.*, ed. 1884); Yate, "New Zealand," p. 85. The same rule seems to have prevailed amongst the Aleutian Islanders and the Jews, except that amongst the former it applied only to widows (Waitz, "Anthropologie," III, p. 316; Bastian, "Mensch," III, p. 81; Jeremiah xvi, 7, "Neither shall men break bread for them in mourning," which is the reading of the Revised Version, but the marginal reading of the Authorised).

in contact with the dead may eat, but may not touch their food. Now considering that the ghost could be cut, burned, drowned, bruised with stones, and squeezed in a door (for it is a rule in Germany not to slam a door on Saturday for fear of jamming a ghost)¹ it seems not unreasonable to suppose that a ghost could be eaten, and if we make this supposition I venture to think we have a clue to the origin of fasting after a death. People, in fact, originally refrained from eating just in those circumstances in which they considered that they might possibly in eating have devoured a ghost. This supposition explains why, so long as the corpse is in the house, the mourners may eat outside of the house, but not in it. Again, it explains why those who have been in contact with the dead and have not yet purified themselves (*i.e.*, have not yet placed a barrier between themselves and the ghost) are not allowed to touch the food they eat; obviously the ghost might be clinging to them and might be transferred from their person to the food, and so eaten.²

¹ Wuttke, "Deutscher Aberglaube," § 752.

² The probability of this explanation is at first sight somewhat diminished when we find that the prohibition to partake of food indoors was not confined to cases where there was a corpse in the house, but applied to all persons who, from whatever cause, were under a taboo. Hence a chief, who was always taboo ("Old New Zealand," p. 94), never under any circumstances ate in his house (Shortland, "Maori Religion and Mythology," p. 28; Taylor, "New Zealand," pp. 165, 168; Yate, "New Zealand," p. 87). A discussion of the ideas at the root of the taboo system would lead me too far, but I may indicate a line of argument by which the presumption raised by the fact just stated against the theory in the text may perhaps be rebutted, if not a contrary presumption raised in its favour. The infringement of a taboo was supposed to bring sickness and death on the guilty person ("Old New Zealand," p. 95 *sqq.*; Shortland, *op. cit.*, p. 31; Mariner, "Tonga Islands," I, pp. 142 *note*, 194; Klemm, "Culturgeschichte," III, p. 373). But sickness, according to the Maoris, was produced by an *atua* slipping down the throat of a man and devouring his vitals, and the aim of the medicine-man was therefore to expel the *atua* (Taylor, "New Zealand," p. 135, *cf.* pp. 137, 170; Polack, "Manners and Customs of the New Zealanders," I, p. 263 *sq.*, *cf.* p. 234; Shortland, *loc. cit.*). Now the *atus* were ancestral spirits of chiefs (Polack, I, p. 51; *cf.* Taylor, p. 135 *sqq.*), and would, when they visited the earth, naturally stay in the chief's house, who was himself an *atua* (Taylor, p. 352); hence any one who ate in the chief's house would run the risk of swallowing an *atua*, and thereby of falling sick and dying, which was exactly the effect supposed to be produced by the violation of a taboo. Consistency, however, is as little characteristic of savage as of civilised man; hence we need not be surprised to find that with this theory of sickness a Maori warrior would nevertheless gouge out and swallow the eyes of a chief whom he had slain, hoping thus to appropriate his *atua*, which resided in the eyes (Taylor, *loc. cit.*). When a Natchez had killed his first foe or made his first prisoner, he ate no flesh for six months, lest the ghost of his slain enemy should kill him (Meiners, "Geschichte der Religionen," II, p. 150 *sq.*). Part of the purification undergone by a Pima, after killing an Apache, was a fast of sixteen days; only after the fourth day was he allowed to drink a little pinole (Bancroft, "Native Races," I, p. 553, referred to above, p. 81). The Caribs are said to have fasted rigorously after the body had been buried (Rochefort, "Histoire Naturelle et Morale des Isles Antilles," p. 569, ed. 1665). Why they did not do so before, it is not easy to see.

This theory further explains the German superstition mentioned above, that no one within hearing should eat while the passing bell is tolling. For the passing bell is rung when a soul is issuing for the last time from its mortal tabernacle, and if any one in the neighbourhood were at this moment to eat, who knows but that his teeth might close on the passing soul? This explanation is confirmed by the companion superstition that no one should sleep while the passing bell is tolling, else will his sleep be the sleep of death.¹ Put into primitive language, this means that as the soul quits the body in sleep, if it chanced in this its temporary absence to fall in with a soul that was taking its eternal flight, it might, perhaps, be coaxed or bullied into accompanying it, and might thus convert what had been intended to be merely a ramble into a journey to that bourne from which no traveller returns.

All this time, however, Plutarch has been waiting for his answer, but, perhaps, as he has already waited two thousand years, he will not object to be kept in suspense for a very few more minutes. I have already detained you too long, and for the sake of brevity in what remains I will omit all mention of the particular usages on a comparison of which my answer is based, and will confine myself to stating in the briefest way their general result.

We have seen the various devices which the ingenuity of early man struck out for the purpose of giving an "iron welcome to the dead." In all of them, however, it was presupposed that the body was in the hands of the survivors and had been by them securely buried; that was the first and most essential condition, and if it was not fulfilled no amount of secondary precautions would avail to bar the ghost.

But what happened when the body could not be found, as when the man died at sea or abroad? Here the all-important question was, What could be done to lay the wandering ghost? For wander he would, till his body was safe under the sod, and by supposition his body was not to be found. The case was a difficult one, but early man was equal to it. He buried the

¹ Sonntag, "Todtenbestattung," p. 176, who says, "sonst stirbt man bald," but I cannot doubt that the original belief was as stated in the text, for it is a common belief in Germany that when a death takes place all sleepers in the house should be immediately roused or they will never wake again (Wuttke, "Deutscher Aberglaube," § 726). This again confirms my view that the bell during the ringing of which no one must eat or sleep was originally not the funeral, but the passing bell. The very cattle in the stalls and the bees in the hives are awakened after a death or they too will die (Wuttke, *loc. cit.*; Panzer, "Beitrag zur deutschen Mythologie," II, p. 293). In Scotland it was an old custom to allow no one in a house to sleep when a sick man was near his end (C. Rogers, "Social Life in Scotland," I, p. 152.)

missing man in effigy,¹ and according to all the laws of primitive

¹ The practice of burying in effigy prevailed in ancient Greece (and apparently ancient Italy), Mexico, and Samoa, and it is still preserved in more or less perfect forms in modern Greece, Italy, Albania, India, China, and Vancouver's Island. (1) In Chariton iv, ch. 1, an effigy of a missing man is carried on a bier, and it is said that it was an ancient Greek custom to give rites of sepulture to those whose bodies were not to be found (*καὶ τοὺς ἀφανεῖς τάφοις κοτμεῖν*). Euripides tells us that when a man had been drowned at sea his friends at home buried him *κενοῖσιν ἐν πέπλων ὑφάσμασιν* (Euripides, "Helene," 1243), which seems to mean that an image of him was made up with clothes; this was laid on a bier, and taken out to sea, where, along with offerings, it was thrown overboard. But it is not easy to say whether this was really a Greek custom or only a dramatic stratagem. (2) In Rome, burial of the absent took place according to certain solemn rites (Servius on Virgil, "Æneid," vi, 366). Cf. Apuleius, "Metamorphos.," I, c. 6, "At vero domi tuæ iam defletus et conclamatus es; liberis tuis tutores iuridici provincialis decreto dati; uxor persolutis feralibus officiis luctu et maerore diuturno deformata," &c. (3) In ancient Mexico, when a trader died in a far country the relations at home made a puppet of candlewood, adorned it with the usual paper ornaments, mourned over it, burned it, and buried the ashes in the usual way. Similarly soldiers who fell in battle were buried in effigy. Bancroft, "Native Races," II, p. 616 sq. (4) In Samoa the relations spread out a sheet on the beach near where the man had been drowned, or on the battlefield where he had fallen; then they prayed, and the first thing that lighted on the sheet (grasshopper, butterfly, or whatever it might be) was supposed to contain the soul of the deceased and was buried with all due ceremony. Turner, "Samoa," p. 150 sq. (5) In modern Greece, when a man dies abroad, a puppet is made in his likeness, and dressed in his clothes; it is laid on the bed, and mourning is made over it. Wachsmuth, "Das alte Griechenland im neuen," p. 113. (It is not, however, said that this puppet is actually buried. Mr. T. H. Bent witnessed at Mykonos a formal lamentation for an absent dead man, but where the bier would have stood there was an empty space. T. H. Bent, "The Cyclades," p. 222 sqq.) (6) A similar custom of mourning over an effigy is observed in some parts of Calabria. Vincenzo Dorsa, "La Tradizione Greco-latina negli usi e nelle credenze popolari della Calabria Citeriore," p. 93. (7) In Albania, when a man dies abroad all the usual lamentations are made at home as if the body were present; the funeral procession goes to the church, but in place of the bier a boy walks carrying a dish on which a cracknel is placed over some boiled wheat. This dish is set in the middle of the church, and the funeral service is held over it; it is not, however, buried, but the women go and weep at the grave of the relation who died last. Hahn, "Albanesische Studien," I, p. 152. (8) The Garuda-purāṇa (the best authority on modern Hindu beliefs and ceremonies relating to the dead) directs that "if a man dies in a remote place, or is killed by robbers in a forest, and his body is not found, his son should make an effigy of the deceased with Kusi grass, and then burn it on a funeral pile" with the usual ceremonies. Monier Williams, "Religious Thought and Life in India," p. 300. (9) In China, "during the reign of the Emperor Chan-tuk, in the first century of the Christian era, it was enacted that if the bodies of soldiers who fall in battle, or those of sailors who fall in naval engagements, cannot be recovered, the spirits of such men shall be called back by prayers and incantations, and that figures shall be made either of paper or of wood for their reception, and be burned with all the ordinary rites. . . . The custom is now universally observed." Gray, "China," I, p. 295 sq. "In case the corpse is not brought home to be buried, a letter, or some of the clothing recently worn by the deceased, or his shoes, or part of his baggage, is often sent home instead. The white cock and the mourners go forth to meet the letter or relic of the departed just as they would go to meet the corpse. On meeting the letter or the relic, the spirit passes as readily into the fowl as it would pass into it were the corpse itself met, and the spirit is conducted home just as surely." Doolittle, "Social

logic an effigy is every bit as good as its original.¹ Therefore when a man is buried in effigy with all due formality, that man is dead and buried beyond a doubt, and his ghost is as harmless as it is in the nature of ghosts to be.

But it occasionally happened that this burial by proxy was premature, that in fact the man was not really dead, and if he came home in person and positively declined to consider himself as dead, the question naturally arose, was he alive or was he dead? It was a delicate question, and the solution was ingenious. The man was dead, certainly—that was past praying for. But then he might be born again; he might take a new lease of life. And so it was; he was put out to nurse, he was dressed in long clothes; in short, he went through all the stages of a second childhood.² But before he was eligible even for this pleasing experience he had to overcome the initial difficulty of getting into his own house. For the door was as ghost-proof as fire and water could make it, and *he* was a ghost. As such, he had to do as ghosts do; in fact, not to put too fine a point on it, he had to come down the chimney.³ And down the chimney he came—and this is an English answer to a Roman question.

Life of the Chinese," p. 164 (ed. Paxton Hood). (10) In Vancouver's Island, when a man was drowned and his body could not be found, the mourning took place in the usual way, and to the grave were carried two cedar boards, on "one of which was a small porpoise, over which the other board was placed, which bore the roughly traced representation of a man." G. M. Sproat, "Scenes and Studies of Savage Life," p. 263.

In Madagascar cenotaphs are erected for those whose bodies cannot be found and their ghosts are supposed to be allured thither. Ellis, "History of Madagascar," I, p. 255. In New Zealand, "when a chief was killed in battle and eaten, his spirit was supposed to enter the stones of the oven, with which his body had been cooked, which retained their heat so long as it remained in them; his friends repeated their most powerful spells to draw his spirit out of the stones, and bring it within the waki tapu [sacred grove], for it was thought otherwise it could not rest, but would wonder about inflicting injury on the living, all spirits being considered maliciously inclined towards them; so when any were slain in battle, if the body could not be obtained, the friends endeavoured to procure some of the blood, or fragments of their garments, over which they uttered a karakia [spell], and thus brought the wandering soul into the spiritual fold." Taylor, "New Zealand," p. 221.

¹ For evidence see Tylor's "Early History of Mankind," p. 116 *sqq.*

² Plutarch, "Rom. Quæst.," v.

³ See the passages cited in note 6 on p. 84. In classical times, when Plutarch wrote, the man probably descended through the *compluvium* (or *impluvium*, as it was less strictly called), an opening in the roof of the *atrium* or principal apartment. (See Marquardt, "Privatleben der Römer," I, p. 231 *sqq.*) It is through this opening that Terence represents Jupiter as descending to Danaë ("Eunuchus," II, 5, 40); and if any one was carried bound into the house of the Flamen Dialis, the ropes with which he had been tied had to be drawn up through the *compluvium*, and thence let down into the street (Aulus Gellius, x, 15, 8). But the *atrium* was originally dining-room and kitchen in one (Servius on Virgil, "Æneid," i, 726); hence the *compluvium* was probably the smoke-hole or chimney of the primitive house.

APPENDIX.

NOTE I.—MOURNING COSTUMES.

It has been said above (p. 73) that mourning costume is usually the reverse of that of ordinary life. Thus we find that savages who ordinarily paint themselves sometimes refrain from doing so after a death (Charlevoix, "*Histoire du Paraguay*," I, p. 73). Again, in similar circumstances, tribes which usually go naked put on certain articles of dress. Thus in some parts of New Guinea, where the men go naked and the women wear only a short grass petticoat, women in mourning wear a net over the shoulders and breast (Chalmers and Gill, "*Work and Adventure in New Guinea*," p. 35). Elsewhere in New Guinea men also wear netted vests (*ib.*, p. 130), and in another place "when in deep mourning they envelope themselves with a very tight kind of wicker-work dress, extending from the neck to the knees in such a way that they are not able to walk well" (*ib.*, p. 149). On the other hand, when the Mpongwés in Western Africa are in mourning, a woman wears as few clothes as possible, and a man wears none at all (Wood, "*Natural History of Man*," I, p. 586), though the tribe is very fond of dress, the usual garb of a man being a shirt, a square cloth falling to the ankles, and a straw hat (Du Chaillu, "*Equatorial Africa*," p. 9; cf. J. L. Wilson, "*Western Africa*," c. 19). The Lycians in mourning dressed as women (Valerius Maximus, II, 6, 13; Plutarch, "*Consol. ad Apoll.*," c. 22).

Whether or not these peculiar costumes (or absence of costume) were meant to disguise the wearers of them from the ghost of the deceased, certain it is that disguises have been assumed as a means of bilking spirits. Thus the Mosquito Indians believe that the devil (Wulasha) tries to get possession of the corpse; so after they have lulled him to sleep with sweet music "four naked men *who have disguised themselves with paint*, so as not to be recognised and punished by Wulasha, rush out from a neighbouring hut" and drag the body to the grave (Baneroft, "*Native Races*," I, p. 744, *sq.*). At the feast held on the anniversary of the death these same Indians wear cloaks fantastically painted black and white, while their faces are correspondingly streaked with red and yellow, perhaps to deceive the devil. Again in Siberia, when a Shaman accompanies a soul to the under world (see above p. 67), he often paints his face red, expressly that he may not be recognised by the devils (W. Radloff, "*Aus Siberien*," II, p. 55). In South Guinea, when a woman is sick she is dressed in a fantastic costume; her face, breast, arms, and legs are painted with streaks of white and red chalk, and her head is decorated with red feathers. Thus arrayed she struts about before the door of the hut brandishing a sword (J. L. Wilson, "*Western Africa*," c. 28). The intention is doubtless to deceive or intimidate the spirit which is causing the disease. (To deceive the demon of disease modern Jews will formally change the sick man's name. Buxtorf, "*Synagoga Judaica*," p. 696; Bodenschatz, "*Kirchliche Verfassung der heutigen Juden*," iv, p. 168; J. Allen, "*Modern Judaism*," p. 434, ed. 1830.) In Guinea, women in their pregnancy also assume a peculiar attire; they leave off ornaments, allow their hair to grow, cease to paint themselves, wear peculiar bracelets, anklets, &c., and in the last eight days their heads are thickly plastered with red clay, which they may not leave off till the child is born (Klemm, "*Culturgeschichte*," III, p. 284 *sq.*). This is probably to disguise them from the demons, who lie in wait for women at these periods. And it may be the same idea which caused the Kafirs to paint the child after birth (*ib.*, p. 285), for new-born children are apt to be carried off by spirits. (Hence the Laosians tie strings round the wrists of the baby on the first night after its birth. C. Bock, "*Temples and Elephants*," p. 253). Australian widows near the north-west bend of the Murray shave their heads and plaster them with pipe-clay, which, when dry, forms a close-fitting skull-cap, about an inch thick (Wood, "*Natural History of Man*," II, p. 92). In Ceylon the Kattadias dance in masks, in order to heal diseases caused by demons (Bastian, "*Die Seele*," p. 102). At the funeral of a high official in Corea there is a man with a hideous

mask to frighten away the spirits (Griffis, "Corea, the Hermit Nation," p. 278). If my explanation of the ceremony of passing through the fire (above, p. 81) is correct, the custom the people had of blackening each other on these occasions and wearing the smut on their faces for long afterwards was probably intended as an additional precaution against the demons of the plague (Grimm, "Deutsche Mythologie," II, p. 504).

The customs of blackening the face or body and of cutting the hair short after a death are very widespread. But when we find these customs observed after the death, not of a friend, but of a slain enemy (Bancroft, "Native Races," I, p. 764), no one will pretend that they are intended as marks of sorrow, and the explanation that they are intended to disguise the slayer from the angry ghost of the slain may be allowed to stand till a better is suggested. These disguises are meant to serve the same purpose as the so-called purifications of slayers of men and beasts (see above, p. 81). In fact, "mourning" and "purification" run into each other; this "mourning" is not mourning, and this "purification" is not purification. Both are simply pieces of spiritual armour, defences against ghosts or demons. In regard to "mourning" costume this appears clearly in the Myoro custom; when the child of a Myoro woman dies, she smears herself with butter and ashes and runs frantically about, while the men abuse her in foul language, for the express purpose of frightening away the demons who have carried off the child (Speke, "Journal of the Discovery of the Source of the Nile," p. 542). If the curses are meant to frighten, are not the ashes meant to deceive the demon? Here the disguise is adopted as a protection, not against the spirit of the dead, but against the devils which carried it off, and it is possible that the same may be true of "mourning" costume in other cases; but considering the general vicious and dangerous nature of ghosts, it is probable that "mourning" costume was usually a protection against them, rather than against devils. For examples of blackening the body in mourning by means of ashes, soot, &c., see Carver, "Travels through the Interior Parts of North America," p. 407; Bancroft, "Native Races," I, pp. 86, 134, 173, 180, 206, 288, 370; *id.*, II, p. 618; H. H. Johnston, "The River Congo," p. 426; Chalmers and Gill, "Work and Adventure in New Guinea," pp. 36, 37, 149, 266, 286; Schoolcraft, "Indian Tribes," II, p. 68; *id.*, IV, pp. 55, 66; Cook's "First Voyage," Bk. I, c. 14; Charlevoix, "Journal Historique," II, p. 111; Du Chaillu, "Journey to Ashango-land," p. 133; Turner, "Samoa," p. 308 (*id.*, "Nineteen Years in Polynesia," p. 322); Waitz, "Anthropologie," III, p. 196; *id.*, VI, p. 403; Wood, "Natural History of Man," I, p. 580; Sproat, "Scenes and Studies of Savage Life," p. 259; Smith's "Virginia," in Pinkerton's "Voyages and Travels," XIII, p. 33. The Andaman Islanders smear themselves with clay (E. H. Man, "Aboriginal Inhabitants of the Andaman Islands," pp. 73, 77, 78); the Egyptians threw mud on their heads (Herodotus, ii, 85; Diodorus, i, 72), and they sometimes did so still (Wilkinson, "Manners and Customs of the Ancient Egyptians," III, p. 442. The custom of cutting the hair short in mourning is very common all over the world; examples would be endless. I may mention, however, that the Greek and Persian custom of cutting off the manes of their horses in extreme mourning is also observed by the Comanche Indians of North America (Euripides, "Alcestis," 429; Plutarch, "Pelopidas," 33; *id.*, "Alexander," 72; *id.*, "Aristides," 14; Herodotus, ix, 24; Bancroft, "Native Races," I, 523. The Comanches cut off the tails as well as the manes. Possibly the Greeks and Persians did so too, but it is only said that they "shaved" their horses, except in Euripides, where the shaving is distinctly confined to the manes). The opposite custom of letting the hair grow long in mourning is much rarer; it has been practised by the Egyptians (Herodotus, ii, 36), Jews (Buxtorf, p. 706; Bodenschatz, iv, p. 179), Chinese (Gray, "China," I, p. 286), widows on the Slave Coast (P. Bouche, "La Côte des Esclaves," p. 218 *seq.*), and Hindu sons in mourning for a parent (S. C. Bose, "The Hindoos as they are," p. 254). The practice of wounding or mutilating the body has also been very general. The case of the Koossa widow in South Africa is instructive in various ways. She had to stay by herself in a solitary place beside a blazing fire for a month (as we saw above, p.

85); by night she came secretly to the hut where she had lived with her husband, and burned it down, after which she returned to her solitude. At the end of the month she *threw away her clothes, washed her whole body, scratched her breast, arms, and thighs with sharp stones, girded her body round with rushes twisted together, and at sunset* returned to the kraal (Lichtenstein, "Travels in Southern Africa," I, p. 259). Now when we remember the pains taken by widows in other parts of Africa to get rid of their husbands' ghosts (see above, p. 79), we can hardly doubt that the precautions taken by the Koossa widow had a similar object in view; that, in fact, by scratching her person, assuming a peculiar garb, and returning at dusk to her home, she was trying to throw the ghost off the scent. Some peoples (as the Saccæ, after a death, went down into pits and hid themselves for days from the light of the sun (Plutarch, "Consol. ad Apoll.," 22; Ælian, "Var. Hist.," xii, 38). At sunset Calabrian women cease from their wild lamentations and doff the black veils which they donned at the moment of death (V. Dorsa, "La Tradizione Greco-latina negli usi e nelle credenze popolari della Calabria Citeriore," p. 91). On my hypothesis the explanation of this interesting custom is that disguise is superfluous in the dark. At the same time it is curious to find the contrary custom (strict silence by day, loud lamentations by night) in places so widely apart as Madagascar and Yucatan (Ellis, "History of Madagascar," I, p. 233; Baneroft, "Native Races," II, p. 801). In Corea, sons in mourning for their parents wear a peaked hat, which covers the face as well as the head; the Jesuits in Corea have successfully availed themselves of this costume as a disguise (Griffis, "Corea, the Hermit Nation," p. 279; Reclus, "Nouvelle Géographie Universelle," VII, p. 675).

A few words may be added on mourning colours, though the subject does not concern us here very closely. Black dress (developed out of the habit of blackening the body with ashes, &c.) was, or is still, the usual mourning in ancient Greece (Homer, "Iliad," xxiv, 94; Artemidorus, "Oneirocrit.," ii, 3; Euripides, "Alcestis," 427; Plutarch, "Pericles," 38; Xenophon, "Hellen.," i, 7, 8; &c.), Rome (Marquardt, "Privatleben der Römer," I, p. 346), modern Greece (Wachsmuth, "Das alte Griechenland in neuen," p. 109), and among widows on the Slave Coast (P. Bouche, "La Côte des Esclaves," p. 218). The Omahas in North America painted themselves white (Waitz, "Anthropologie," III, p. 196), and white dress is (or was) mourning in Corea (Ross, "History of Corea," p. 318; cf. Dallet, "Histoire de l'Église de Corée," I, p. xxix), China (Dennys, "Folklore of China," p. 25; but for a more exact statement, see Doolittle, "Social Life of the Chinese," p. 138), Tonquin (J. G. Scott, "France and Tongking," p. 98; Baron, however, describes it as ash-coloured, "Description of the Kingdom of Tonqueen," in Pinkerton, ix, p. 698; Richard—in Pinkerton, *ib.*, p. 708—agrees with Scott), Siam (Pallegoix, "Siam," I, p. 246; C. Bock, "Temples and Elephants," I, p. 246), among the Mussas (Bock, *ib.*, p. 310), in ancient Argos (Plutarch, "Quæst. Rom.," 26), among Roman women, in Imperial times at least (Plutarch, *ib.*; Herodian, iv, 2), in Voigtland (Köhler, "Volksbrauch im Voigtland," p. 257, but the custom has nearly, if not quite, died out), and in Saterland in Oldenburg (Strackerjan, "Aberglaube und Sagen aus dem Herzogthum Oldenburg," II, p. 132). In England the scarfs, hatbands, and gloves worn at the funerals of unmarried persons and infants used always to be white (Brand, "Popular Antiquities," II, p. 283), and they are so still at the funerals of young persons in Scotland. When Sophocles heard of the death of Euripides he put on gray or dark blue (*ἰσάριον φαιὸν ἤτοι πορφύρεον*, Westermann's "Biographi Græci," p. 135), and gray (with the alternative of white) was mourning among the *Γαυβρείωται* (Corp. Inscript. Græcæ, II, n. 3562, quoted by Hermann, "Lehrbuch der griechischen Privatalterthümer," p. 370, 3te Aufl.). Blue is the mourning colour for women in some parts of Germany (Rochholz, "Deutscher Glaube und Brauch," I, p. 198). A strip of blue is worn round the head by modern Egyptian women at a funeral, and from the monuments this appears to have been an ancient custom (Lane, "Manners and Customs of the Modern Egyptians," II, p. 257). Blue is said also to be the Syrian, Cappadocian, and Armenian colour (Brand, "Popular

Antiquities," II, p. 282), and dark blue may be used as an alternative to black by widows on the Slave Coast (Bouche, *loc. cit.*). In Guatemala a widower dyed himself yellow (Bancroft, "Native Races," II, p. 802), and it is said that Anne Boleyn wore yellow for Catherine of Aragon (Brand, II, p. 283).

NOTE II.—THE GOLDEN WELCOME.

If the spirit of the dead usually receives a grim or iron he occasionally receives a loving or golden welcome from his friends. The Koreans seek to recall the departed soul. A servant takes a garment once worn by the deceased, ascends to the top of the house, and, looking northward (whither the spirits flee), he calls aloud thrice the name of the deceased (Ross, "History of Corea," p. 321). The loud cry (*conclamatio*) raised by the Romans at death may have had the same object (Becker's "Gallus," p. 506). In Masuren on the evening of the funeral day they place a chair in the chamber of death and hang a towel on the door, for on that evening the ghost comes back from the grave, seats himself on the chair, weeps bitterly, dries his tears with the towel, and goes away for ever (Toppen, "Aberglaube aus Masuren," p. 111). The Jews keep a lamp burning for seven days at the head of the bed where the man died, because the ghost returns thither to weep (Buxtorf, "Synagoga Judaica," p. 711); beside this light were placed a glass of water and a towel (Bodenschatz, "Kirchliche Verfassung der heutigen Juden," iv, p. 178. The reason here assigned is that the Angel of Death may wash his sword in the water and wipe it with the towel, but probably the water and the towel were originally intended, like the light, for the convenience of the ghost). In some parts of Calabria they place bread and water in the room for three nights, because the ghost returns at midnight to eat and drink (V. Dorsa, "La Tradizione Greco-latina negli usi e nelle credenze popolari della Calabria Citeriore," p. 92). The Samoan custom of keeping up a stream of light between the house and the grave may have been intended (as we saw, p. 91) to show the ghost the way back to the house. With this object, apparently, some Central American tribes extend a thread from the house to the grave, carrying it in a straight line over every obstacle (Bancroft, "Native Races," I, p. 745). In some parts of Germany the funeral always goes by the high road, in order that the ghost may be able to find his way home (Sonntag, "Todtbestattung," p. 175). In the Mariana Islands when a man was dying they placed a basket beside him and begged the soul at its departure to go into the basket, and to take up its quarters there on any future visits to the house (Waitz, "Anthropologie," V, ii, p. 151). In some Russian villages from time to time all the dead are feasted in a house and are then let down through the window by a shroud into the street and go their way (Ralston, "Songs of the Russian People," p. 321, *sq.*).

DISCUSSION.

The PRESIDENT thought it a fair topic of discussion whether it was likely that any widely prevalent and long enduring custom sprang from a single root, and whether, on the other hand, its existence and persistence under very varied conditions was not some evidence of its origin in many roots, and of its being sustained by a concurrence of motives. He would instance the prevalent custom in society of avoiding the name of a recently deceased person when speaking to his or her very near relatives. For his own part he felt the disinclination very strongly, on the ground that it was too direct under the circumstances, and that a euphemism was more appropriate. Probably others felt the same, and he and they followed a savage custom for totally different reasons to that by which the savage was principally governed.

Dr. E. B. TYLOR remarked that Mr. Frazer's original and ingenious treatment of the evidence must materially advance the study of animistic funeral customs. His theory of the connection of purification by water or fire with attempts to bar the return of ghosts deserved, and would doubtless receive, the careful consideration of anthropologists. Dr. Tylor adduced from Mr. Yarrow's paper on Mortuary Customs a case of water burial carried out for the purpose of preventing the return of harmful ghosts. With regard to the entrance of the person supposed dead by the roof, he called attention to the fact that such entrance is adopted in some districts as a symbolic rite, perhaps indicating descent from heaven, which might possibly be the explanation of the Roman practice. Dr. Tylor concluded by expressing his satisfaction at the excellent results of Mr. Frazer's study of classical authors, not as mere ancient texts, but as repertoires of real facts full of anthropological value.

Mr. F. T. HALL suggested that the idea of water as a barrier between the dead and the living might have originated with the primitive and indeed general belief that the souls of the departed are not at rest until they have passed to the other side of some great water, now referred to as "the river of death." The Chaldeans made their dead cross a mysterious sea, the Egyptian dead navigated across the infernal Nile; the Greeks and Romans had their Styx, over which the soul could not be ferried until proper funeral rites had been performed with the body, the unburied wandering on this side of these waters for twelve months before being allowed to cross. Even the waters of the firmament were considered to be interposed between earth and heaven. The general idea was that the earth, the abode of the living, was encompassed by water over which the dead souls had to pass before they reached the place of rest, and that until water was interposed between the dead and the living the soul could not be at rest and was apt to wander through the earth.

Mr. BEAUFORT observed that there was at all events one modern nation where water was not supposed to restrict the movements of ghosts, namely, Japan. On the evening that the speaker entered Nagasaki the Japanese were celebrating the annual return of the dead to visit the living. All the tombs were lighted by pretty coloured lanterns, and food was placed there for the use of the spirits. On the third day hundreds of miniature vessels were sent to sea freighted with food for the spirits on their return voyage. Thus the spirits make two voyages every year.

Mr. HYDE CLARKE said that in the consideration of the re-entry to the house it must be taken into account that in the Persian example, as in many others, the house would be terraced on the top with an approach from below. In most cases the houses are isolated, and as there is no exit elsewhere from the terrace it is naturally suggestive as an entry for the ghost. With regard to not mentioning the name of the dead, it must be borne in mind, there is equal superstition as to mentioning the name of the living, as of a husband. So also the sacred name of a city. The name is the spiritual essence

of the ghost and the Ka. A character for name is the round or circle, and this is perhaps the origin of the cartouche encircling names in hieroglyphics, &c. He might mention one legend as to the connection of the dead and the living in Slav countries, which he had learned from a Servian friend, in whose family an example had happened, and which he believed was included in the MSS. of the folk-lore of Servia prepared for the press by Madame Mijatovich. There is a superstition of a mysterious connection between those members of a family born in the same month, who are denoted in Slav as "Same month," and of whom of course there are many examples, as we may observe that even in a family of six the births will be severally in three or four months, and not in separate months for each. On a child dying there was great fear for the sister of the "same month," and it was considered necessary to preserve her from the danger or certainty of a similar premature death. A hobble was got in with which horses of the herd are hobbled on the plain, and the living was hobbled by the leg to the dead. An exorcist then repeated the necessary formula, and to him was handed a piece of silver money (about a shilling) which had been given or begged. The child lived, which is a testimony, and of course a confirmation, of the efficacy of the process.

Mr. FRAZER, in reply, expressed his deep gratification at the interest which Mr. Tylor had expressed in his paper. It was the writings of Mr. Tylor which had first interested him in anthropology, and the perusal of them had marked an epoch in his life. He fully agreed with an observation of the President, that it would be hazardous to assume that when in modern times a man dresses very carefully on such momentous occasions as going into battle (as General Skobeleff used to do), we had here a relic of the old feeling which prompted people to dress a dying man in his best clothes. On the other hand, he was inclined to think that in the modern reluctance to mention the name of a person recently deceased we had a relic (of course quite unconscious) of the old belief that a dead man will hear and answer to his name; there was a large substratum of savagery underlying all our civilisation. Replying to Mr. Tylor he said that he (Mr. Tylor) had laid his finger on the apparent inconsistency of the facts that ghosts could bathe in water, yet not cross it; but the author pointed out that men were exactly in the same predicament—that, in fact, in dealing with primitive ghosts we always had to regard them as being as nearly as possible the exact counterpart (only invisible) of men, and hence that though ghosts had the same difficulty which men had in crossing water, yet the difficulty was not insuperable for ghosts any more than for men. Thus Mr. Beaufort had informed them that Japanese ghosts could cross water in boats, and the author referred to the well-known story of King Gunthram, whose soul was seen to depart from him in sleep and to seek in vain to cross a stream till some one laid a sword across it, on which the soul immediately crossed over to the other side. With regard to the interesting Slavonic superstition mentioned by Mr. Hyde Clarke, that a child born in the same month with a child that had died was especially

likely to die, and that special precautions had to be taken to save it, the author suggested that we might get some light by comparing the Laosian beliefs with regard to children. The Laosians think that an infant is the child, not of its parents, but of the demons; and hence they call on the demons to carry off their child within four and twenty hours after birth or else to leave it for ever. Moreover, they give the child a hideous name by way of frightening away the demon, and they sell it for a nominal price to a friend, under the impression that the demons are too honest to carry off what has been actually bought and paid for. Now if the demons had carried off a child born in a particular month, it might be thought that this gave them a special power over another child born in the same month, and that therefore special precautions were needed to prevent its dying. One of the speakers had suggested that in Persia the supposed dead man might have returned through a door in a terraced roof. In reply, Mr. Frazer said that there was evidence to show that in the case in question the entrance was made through the *compluvium*, an opening in the *atrium* or principal apartment of the house. Now as this *atrium* was distinctly stated by the ancients to have been originally sitting-room and kitchen in one, it is not unreasonable to infer that it represented the single apartment of the primitive house, and that the aperture in the roof (afterwards known as the *compluvium*) was originally the smoke-hole or chimney.

The following paper was then read by the Director:—

The SCULPTURED DOLMENS of the MORBIHAN, BRITTANY.

By Rear-Admiral F. S. TREMLETT, F.R.G.S.

[WITH PLATES III AND IV.]

THE tumuli of Brittany having been so frequently described, it will be unnecessary to give in this paper a lengthened description of them, or of their contents. Several of the most interesting monuments have disappeared, but there still remain a considerable number which will probably be untouched, from the fact that below the thin coat of humus the granite rock is found, and that stone is so easily procurable that the farmers find it more economical to establish a quarry on their fields than to blast with powder the megaliths on their land. To this circumstance may be attributed the preservation of those that remain. There is, however, an exception to this, and that is when the Church requires building stone; the parishioners are then exhorted as a religious duty to obtain and bring to the church whatever material is required, which service is invariably cheerfully rendered and gratis. To this circumstance may be attributed the gap which

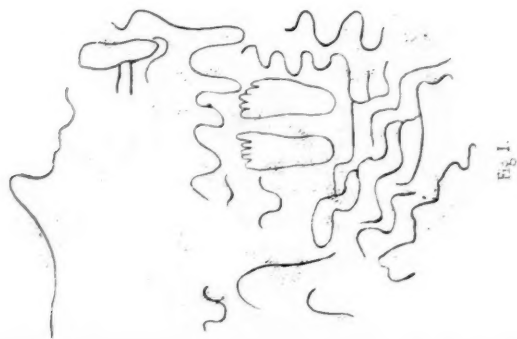


Fig. 1.

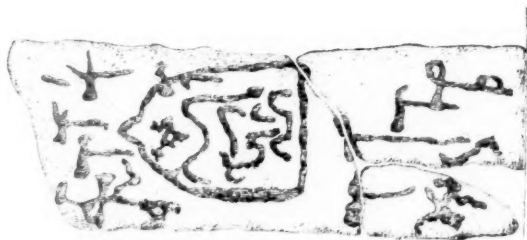


Fig. 2.

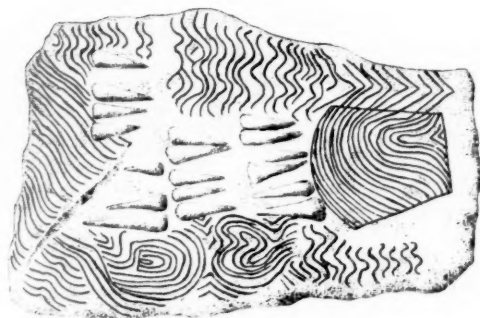


Fig. 3.

SCULPTURED STONES FROM DOLMENS IN BRITTANY.

exists between the alignments of Menac and Kermario, which evidently at one time were continuous. Indeed some of the menhirs remain concealed by the low fir trees in the fields between them. The reason why they were taken from this spot is simple. First, the menhirs were of considerable dimensions; and secondly, they were near to the high road, and therefore more easy to transport. The altars in the church are of granite, and the old beadle who accompanies visitors invariably mentions that they have been made from "menhirs." The same is said of the corona over the north porch of the church.

I propose now to offer some remarks on the sculptures of the dolmens, of which there remain about eighty. They are found usually on the capstones and their supports. A remarkable fact is that the sculptures are circumscribed to within a distance of about twelve miles, near the sea coast, beyond which, although the megaliths are so numerous, there is a complete absence of them.

The French classification of these monuments is as follows:—First, *Galgals* (cairns), composed of roughed stones heaped up, covering a stone chamber; second, *Tumuli*, having also a stone chamber, with an *allée* or passage leading to it for secondary burials. In the construction of both, a quantity of mud from the seashore, or clay, was spread over to a thickness of about 6 feet, with the object of preventing pluvial infiltration, and thus preserving the remains deposited in the chamber. I may here mention that in some cases remains of human bones were found, —almost all, however, calcined.

In some few cases these monuments still remain almost intact, but others have been denuded and have consequently become ruins. Stone being everywhere so abundant, it was really not worth while to take any from the cairns; but, on the other hand, vegetable humus being only a few inches deep, the farmers removed the earth from the tumuli and spread it over their fields. As I shall have occasionally to use the French nomenclature and classification of the sculptures of the dolmens, it seems desirable I should first explain their system, namely:

- | | | |
|----------------------------|---|-----------------------------|
| <i>Signes Cupuliformes</i> | = | Cup markings. |
| „ <i>Pediformes</i> | = | Foot shape. |
| „ <i>Jugiformes</i> | = | Yoke (of cattle) shape. |
| „ <i>Pectiniformes</i> | = | Comb shape. |
| „ <i>Celtiformes</i> | = | Celt (stone hatchet) shape. |

On referring to the Archæological Map of the Morbihan, it will be seen that a tumulus exists on the peninsula of Rhuys, named Tumiac. I propose to commence here, observing that I shall as much as possible omit the details of the explorations, confining myself principally to the sculptures.

The tumulus of Tumiac is composed of three strata. The lower one consists of rough blocks of granite heaped up; the second is of mud and clay from the seashore; the third is of vegetable humus. Its height is 65 feet, and its circumference at the base is 300 feet. From its summit there is a truly magnificent panoramic view extending from the mouth of the Loire to Belle Ile; it, in fact, commands the whole country. In order to discover its chamber a perpendicular cutting was made on its south side, from south-east to north-west, being guided by the well-known and almost universal rule that the entrance to the Breton dolmens is found between the south and east points of the compass. A remarkable difference exists as to the position of this chamber, which is that its floor is about 20 feet *above* the level of the soil, the others usually resting on the granite rock; in fact, the dolmenic chambers have been erected on it. Tumiac may be said to have two chambers joined, but without a separation. Each is nearly a square. The inner one is composed of three supports of granite, which are secured together at the corners by a species of dovetail, which is unique; it is covered by a large slab of granite. The adjoining chamber consists entirely of rough dry stone walls, having two capstones; it is rather more contracted than the former; a human parietal bone was found in the latter. Two of the supports of the first chamber are sculptured: one has on it what very much resembles a double bead necklace (Plate IV, fig. 5); below it there is what is really an indescribable figure; the other support has on its lower part parallel bars, having hooked extremities; above these are some faintly incised waved lines.

We will now proceed to Petit Mont, which is situated to the right on entering the inland sea of the Morbihan, and about three miles from Tumiac; it is stated that it was from this height that Caesar directed the sea fight at the entrance of the Mobihan between his galleys and those of the "Veneti." A chamber was opened at the foot of this cairn in 1865. Seven of its supports are sculptured, one of which (No. 4) is remarkable, it having incised on it the outlines of two human feet (Plate III, fig. 1), this being the only instance in which any part of the human frame has been found on any of the megalithic monuments of Brittany.

Support No. 10 has incised on it what appear to be two hafted celts; on No. 8 there are some rude imitations of what seem to be axes, also hafted; the remaining sculptures are principally waved lines and cup markings, with the exception of No. 1, which has some parallel zigzags.

Although the dolmens on the peninsula of Rhuy are numerous, the preceding are the only ones which have sculp-

tures on them. We shall therefore pass over to the Ile aux Moines, which is the most considerable island in the inland sea. It has a remarkable cromlech on it, as also several dolmens: the first will be found at the village of Kergonan; it is semi-circular, its diameter is 320 feet; it has actually a farmhouse and buildings within its boundaries. It is formed of thirty-six menhirs, of from 6 to 10 feet high, and from 3 to 6 feet broad. At about a mile beyond it, and on a rising ground, will be seen the dolmen of Pen-hap; on the exterior of its left support, on entering the chamber, there is sculptured a remarkable axe, now much weather-worn; on the inner side of the same support, and inside of the chamber, will be found incised a double oval figure, terminating in cup markings.

We will now pass on to Innis-hir (Long Island), which has on its highest part a cairn containing a chamber, now almost blocked up with stones; on one of the supports of its gallery there is incised a cartouche, now much weathered and hardly discernible.

On the south side of the next island, Gavv Innis, or "Goat Island," there is an elongated cairn, which has a diameter of 180 feet; its original height was 30 feet, but it is now only about 20 feet, its top having been removed, and a sort of crater formed, which reaches down to the capstones. This was done (it is said) to admit light into the chamber. The original form of this cairn was that of an elongated cone, and from its summit a really magnificent panoramic view of the Morbihan and the adjacent islands, as also of the surrounding country, was obtained. The date of its first opening is unknown; its late proprietor opened it in 1832, but it soon became evident that he had been anticipated, the chamber and its *allée* being nearly filled up with stone and rubbish. There was formerly a monastery on this island, the ruins of which existed until lately. The monks probably opened the cairn; it is also a well-authenticated fact that it served as a hiding-place during the revolution of 1793. The dimensions of the chamber are 8 feet by 7, and 5 feet 8 inches high; its *allée* is 14 feet long, 4 feet 6 inches broad, and 5 feet 4 inches high; its side walls consist of twenty-three supporting menhirs. The chamber has eight supports and one capstone, 12 feet 6 inches by 9 feet 6 inches. The chamber and its *allée* are paved with granite flags. All the supports, with the exception of two which are of quartz, are sculptured; the intricacies of these sculptures are truly surprising. They have been compared by some to the tattooing of the New Zealanders. We meet here with sculptured celts of the Neolithic period, which are represented thirty-one times on six of the supports. Four of the latter merit a special attention: one is in the

chamber (No. 9), it has three circular hollows which communicate, there being two loops externally, and which form the divisions; there is ample room to pass the hand through at the back of these loops. Endless theories exist as to their use, but the solution has not been found. Some have imagined that victims were attached to them and there immolated. This appears hardly possible, it being admitted that the chamber was sepulchral. The support No. 8 is peculiar from the arrangement of the celts, which are so placed that in each successive line the numbers are alternately odd and even (Plate III, fig. 3). It has also a cartouche. Support No. 21 has on its lower part three waved figures, which resemble snakes; these have given rise to theories as to the existence of serpent worship, but they are not serpents at all; this has been much disputed. The support No. 16 has on it not only some elaborate sculptures, but also a species of inverted cartouche. The support No. 20 has on the top of it a capstone, having a hafted axe sculptured on it; the stepping stone into the chamber is also prettily sculptured.

We shall now land at Locmariaquer, and visit the dolmen "Des Marchands," also named "La table de César." It has an enormous capstone, which is balanced on the points of three of its supports; it has sculptured on its lower surface (within the chamber) an axe having a handle to it. Endless discussions have taken place as to the interpretation of this symbol, but without arriving at a solution. Some have maintained that it is a phallus, others that it is a plough, a hafted celt, and even an emblem of original sin. At the further end of the chamber there is a cartouche of enormous dimensions; it is in the form of an ogive, and it has on it in relief a series of characters of the pediforme class. The height of this chamber under its capstone is 7 feet. There are also two incised sculptures on the upper parts of the supports of the table, but it is difficult to make them out, as the latter rests on them. It is clear that these sculptures must have been made prior to the erection of the dolmen, as they extend on to the edges of the supports; indeed they stand so close to each other that it would have been impossible to introduce a tool between them. Exactly the same may be said of "Mein Drein," the cup markings on its lower surface resting on its supports. I may here remark that raised sculptures are very rare in the dolmens; those at Gavr Innis may appear to be so, but it is an error, the fact being that the incised lines are so near to each other that the intermediate space appears to be raised.

Our next visit will be to Māné-er-Hroëg, "Mountain of the Fairy or Girl." This is in reality an enormous cairn; its form is elliptical, its diameter is 300 feet, and its height is 30 feet; it had

been coated over with clay, above which there was found in the humus several Roman coins of the reigns of Augustus, Tiberius, Claudius, Nero, Domitian and Trajan, some bronze jewellery, and a bronze finger ring having an engraved stone setting, some bricks, tegulæ, and a square white glass bottle. I may here mention that the same has invariably been the case with the cairns of great height in the neighbouring districts; the country being flat it is believed that the Romans availed themselves of these elevations on which to erect guard-houses and signal stations. At the Moustoir near Carnac, Roman remains, pottery, glass, bricks, and tegulæ, as also a coin of Magnentius, were found. The chamber of Māné-er-Hroëg is square; there were no sculptures in its interior. Its entrance had been closed by a dry stone wall, in which there was a very curiously incised cippus (Plate III, fig. 2); there are apparently several axes having streamers attached to the haft; there is also a cartouche—nothing resembling it has ever been found elsewhere in Brittany. There was another stone built up in the wall having cup markings on it. It is further to be noted that the capstone of this chamber rested on dry masonry walls; there was no *allée*, but it had a crypt below its floor.

The *Māné Lud*, or "Mountain of Cinders" (which is a misnomer), was long supposed to be composed of ashes and cinders; it is a barrow 300 feet long, 150 feet broad, and 30 feet high; it is in reality composed of clay and mud from the seashore; it contains three places of sepulture; it has a small chamber in its centre, an *allée* of menhirs (transversely) within its eastern end, which were found to be capped with horses' skulls. There is a very fine dolmen at its western end. The chamber in the centre was formed by overlapping stones projecting gradually till a dome was formed which was closed by a slab; the remains of two bodies were found in it, one of which had been incinerated: they were separated by a stone partition. There were a quantity of horses' bones (also incinerated) on the exterior of the vault. The dolmen is a handsome one, having seven of its supports sculptured (Plate IV, fig. 4). The jugiforme is frequently repeated, as also the pectiniforme. Three of the celts are hafted, but one is not; the first seemed to have withies twisted round them similarly to the plan employed by blacksmiths for holding their chisels when tongs are not used. There is also a cartouche, and a series of cup markings. There is further on the flooring a raised sculpture which has given rise to endless discussions. Some have maintained that it represents the haft of a celt, others that it is intended for an unstrung bow; but in reality no solution has been or is likely to be arrived at. There is a crypt below the stone floor of this dolmen.

Bé-er-Groah ("Tomb of the Old Woman"). This dolmen is

quite near to the village; it has an inner and an outer chamber, which are contiguous. Three of its supports are sculptured. One is an axe and another is a "jugiforme." Owing to the upper part of the stone having shaled off, the third one is incomplete, and it is therefore difficult to determine what it represents. The capstone of this dolmen is remarkable, it being a slab of granite 34 feet long, 14 feet broad, and 22 inches thick. This dolmen was examined in 1860, but it was evident that it had been previously explored.

The land about Locmariaquer is still strewed with pieces of Roman bricks, notwithstanding that the French Government transported shiploads of them to l'Orient for building in the dockyard; some of the cottages at Locmariaquer have their floors paved with Roman bricks.

The *Pierres Plattes* ("Flat Stones"). This is an *allée couverte*, having an angle in it, its further end being partitioned off to form a chamber. It is situated near the seashore beyond Kerpenhir, and it is now in a ruinous state, so much so that it is difficult to get a sight of the sculptures, of which there are five. One is a cartouche in compartments, having raised circular knobs in each; it has been compared with one from Egypt which is now in the Museum of the Louvre at Paris; the remaining sculptures are also cartouches. Although there are eleven other dolmens in the vicinity none have sculptures on them, but one at Loperhet has cup markings. As we shall now leave Locmariaquer I may perhaps be permitted to explain its etymology, which has so puzzled tourists. It is really composed of three Breton words joined. "*Loc*," a holy place, hermitage, or chapel; "*Maria*," the Virgin; and "*Ker*," a village or farm, *i.e.*, "The village of the Holy Virgin Mary."

Mein Drein ("Stone of Thorns") is situated on the right hand side of the road from Locmariaquer to Crach; it is oval, and has no *allée*. It consists of thirteen supports and two capstones (*vide* No. 1); the further one has 144 cup markings on its under surface, three of its supports are sculptured; the fourth one (Plate IV, fig. 6) has some curious "pectiniformes" and pediformes sculptured on it.

Although the dolmens in the neighbourhood of Crach are very numerous none have sculptures; we shall therefore pass on to the Carnac district, where there are five dolmens having cup markings, and two having lapidary sculptures; of the former the Mont Saint Michel is the most important cairn in the Morbihan, it being 320 feet long, 80 feet high, and 120 feet broad. It is composed of rough stones heaped up, which are computed to measure 100,000 cubic feet; these have also been covered with clay to a thickness of 6 feet. It was opened by driving a perpendicular shaft, and

it was found to have a central chamber similar to the one of *Māné-er-Hroëg* at Locmariaquer. Incinerated bones were found in the crypt below the floor of its chamber; on the under part of its capstone there were six cup markings, so placed as to resemble the constellation of the Pleiades.

About a mile distant from this cairn, and to the right of the alignments of Kermario, is situated the Chateau of Kercado, near which there is a tumulus of the same name; it will well repay a visit, as it is the only one that remains intact in its barrow, and also in a state of preservation. It will be necessary to be provided with lights to enter it. Some angular sculptures will be found on the third support of its *allée*, and another somewhat similar on the first support to the left on entering the chamber. There is a perfectly sculptured axe on the lower part of its capstone. This chamber is in a good state of preservation owing to its having been fitted with a door, the key of which is kept at the Chateau; its dimensions are as near as possible a cube of 8 feet; the length of its *allée* is 23 feet.

On the road from Plouharnel to Auray, and at about two miles from Carnac, there is a group of three dolmens named *Māné Kérion*; the first one to the right has six sculptured supports (Plate IV, figs. 7, 8), which sculptures are mostly angular, and dissimilar to those before described. One of them is remarkable, it having a graduated scale on its outer edge somewhat resembling a ladder (Plate IV, fig. 8); a hafted celt, a cross, and a jugiforme will also be found on these stones. Although the dolmens in this neighbourhood are numerous (there being about fifty in the neighbourhood of Carnac and Plouharnel), there are no sculptures except some cup markings. It is difficult to account for this, unless the sculptures of the dolmens have been confined to a particular district, or perhaps tribe, whose religious cult or social system differed from the others.

It now remains for me to endeavour to elucidate two points with regard to these sculptures. First, the period when they were made, and, secondly, the implements with which they were cut.

In the before-mentioned dolmens there are found in almost every case Neolithic implements, generally highly polished; they consisted of well-finished celts, some of which were of large dimensions; the material employed being nephrite, jadeite, chloromelanite, agalmatolite, tremolite, fibrolite, and diorite. There were also some remarkable necklaces of calaïs (green turquoise), flint knives and chips, as also a few arrowheads. There were some urns, and generally a great quantity of shards of pottery, which had been badly fired; some of it was ornamented with a Vandyke pattern, having a dot in the angles; withies

had also been used to impress circles. Generally speaking, only fragments of human bones were found; in *three* cases they had been incinerated; the latter are presumably the more recent, but as no metal whatever was found in the chambers we may, I think, assume that the sculptures are of the Neolithic period. A peculiarity may here be mentioned, viz., that where incinerated bones were found there was an absence of sculptures, but the Mont Michel dolmen had cup markings on its capstone.

As regards the means employed for sculpturing the stones, no iron or bronze, or even the stains of these metals, having been found in the chambers, we may probably assume that *stone* was employed for the purpose. Having in my peregrinations observed a quantity of chert in the neighbourhood, as also that there was a vein or dyke of it across the granite rock at Clou Carnac, it struck me that I could possibly cut granite with it. Accordingly I selected a blunt and rather heavy piece of it, and commenced operations on a *roche moutonnée* of fine grained granite; its exterior was indurated and difficult to penetrate, but I found the inside of the stone softer, and after pounding and pulverizing for about twenty minutes I found that I had made a really deep cup. I easily made others. I may here remark that I selected this erratic block knowing that it was harder and more compact than the coarse grained granite of the country, which is softer, and of which the dolmens have been constructed. The next thing I had to do was to try and cut scores or lines on the granite; for this purpose I obtained a heavy piece of chert, having a pointed end. I worked away with it and succeeded perfectly in making them on the face of the rock. I therefore came to the conclusion (though perhaps erroneously) that the sculptures of the dolmens had been made in the same manner, and with the same material, namely, the chert which is found not only in great quantities, but of every shade of colour, from deep red to light yellow and white, in those parts of the country where the sculptured dolmens are found.

In conclusion, I may allude to a fact which has not generally been noticed, which is that the surfaces of the granite on which there are sculptures appear to have been previously smoothed or levelled by some process, the exterior being left in a perfectly rough state.

Explanation of Plates III and IV.

- Fig. 1. Sculptures on dolmen of Petit Mont, Avzon, Brittany. The outlines of the human foot are notable.
- „ 2. Ditto on Mâné-er-Hroëg, Lockmariaquer. This stone formed part of the wall which closed the entrance of the chamber of the dolmen.

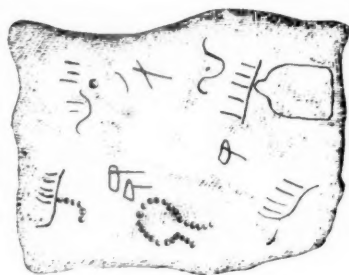


Fig. 4

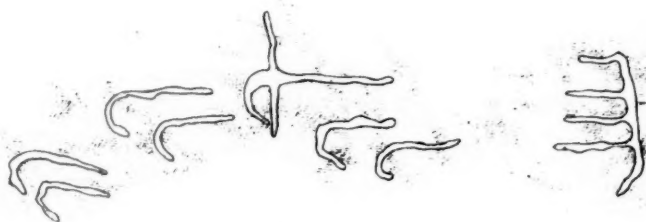


Fig. 6

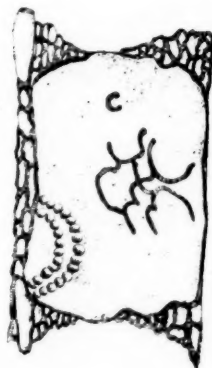


Fig. 5

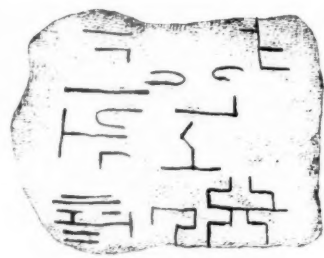


Fig. 7

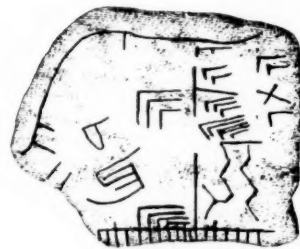
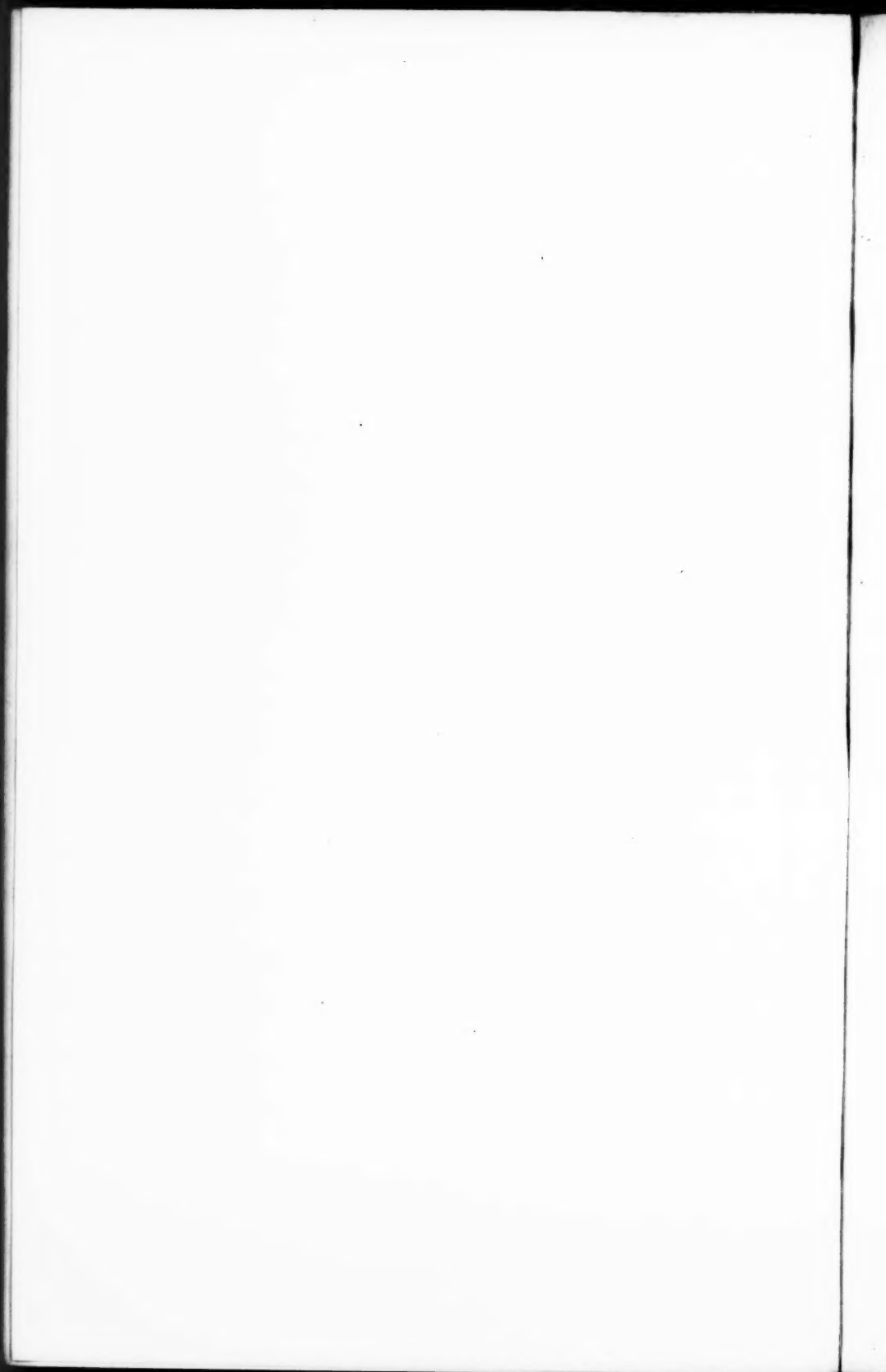


Fig. 8

SCULPTURED STONES FROM DOLMENS IN BRITTANY.

J.P. & W.R. Embley, 1907.



- Fig. 3. Sculptures on Gavv-Innis, showing rows of celts.
" 4. Ditto on dolmen of Mané Lud, Locmariaquer.
" 5. Ditto on the west support at Tumiach, Arzon.
" 6. Ditto on dolmen of Mein Drein.
Figs. 7 and 8. Ditto on Mané Kerion, near Plouharnel.

DISCUSSION.

Mr. F. G. H. PRICE did not agree with the author of the paper as to the antiquity of these monuments, as, had they existed before the time of the Romans, such huge monoliths would hardly have been overlooked and left unnoticed by their historians, who so fully described all the people they came in contact with, as well as their manners and customs. Roman interments, urns, fragments of Samian and other pottery, Roman coins, tiles, &c., had been met with beneath the dolmens, which proved them to have been post-Roman. These monuments were possibly erected by the Veneti in the latter part of the Roman occupation, which might in a measure account for some of the interments having been found in the earth over the dolmens. The speaker did not see why it was necessary to suppose that the sculptures were engraven by chert or quartz implements when there must have been plenty of bronze and iron at that period for the purpose. He agreed with Mr. Fergusson, in his "*Rude Stone Monuments*," in supposing these dolmens to date from the end of the fourth century A.D. to the sixth century A.D., when the custom of erecting such monuments was universal.

MARCH 24TH, 1885.

FRANCIS GALTON, Esq., M.A., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the AUTHOR.—*The Mound Builders.* By George Bryce, M.A., LL.D.

— *L'Anthropologie Générale a l'Exposition de Turin en 1884.* By Pompeo Castelfranco.

— *Œuvres inédites des Artistes Chasseurs de Rennes.* By Émile Cartailhac.

VOL. XV.

- From the MANITOBA HISTORICAL AND SCIENTIFIC SOCIETY.—Papers read before the Society, 1884-5. Annual Report for the year 1884-5.
- From the ACADEMY.—Boletin de la Academia Nacional de Ciencias en Córdoba. Tom. VII, Entrega 3^a.
- Atti della Reale Accademia dei Lincei. Serie Quarta, Vol I, Fas 6.
- From the SOCIETY.—Bulletin des Procès-Verbaux de la Société d'Émulation d'Abbeville, avec une table analytique des Séances. 1881-1883.
- Bulletin de la Société d'Anthropologie de Lyon. 1883, Fas. 1, 2; 1884, Fas. 1.
- Proceedings of the Royal Geographical Society. March, 1885.
- Journal of the Society of Arts. No. 1687.
- From the EDITOR.—Matériaux pour l'Histoire de l'Homme. March, 1885.
- “Science,” Nos. 108, 109.
- “Nature,” Nos. 802, 803.
- Revue Scientifique. Tom. XXXV, Nos. 11, 12.
- Revue Politique. Tom. XXXV, Nos. 11, 12.

The election of the Hon. CECIL DUNCOMBE, and of F. D. MOCATTA, Esq., was announced.

The following paper was read by the author:—

On the NATIVES of NEW IRELAND. By A. J. DUFFIELD, Esq.

BEFORE proceeding with the slight sketch which I propose to make of the Islanders of New Ireland, or Tombarra, as it is called by the natives, I should like to describe in two or three words the impression which these people made upon me when I first saw them, and the conviction I retain regarding their moral and intellectual state.

The first impression I received was one of mingled shame and disgust. Here were grown-up beings, to all outward seeming men, playing the fool in broad daylight; painting their faces, making a hideous caricature of what had at least the semblance of beauty and good looks. But this impression was speedily displaced by another: closer contact drew from them, almost without exception, the most delightful, and at the same time novel delight in feeling a white man, trying to ascertain what relation his shirt had to his skin, or his white pith helmet to his skull. They gave way to unreserved admiration of what they saw, but could not understand; and just as town-bred

children run to pluck the flowers of the field or the fruit of the hedge when they get the chance, so did these children of older growth, on my first making their acquaintance, proceed to help themselves to all that pleased them, and to everything in the form of ornament, or portable chain, button, or pocket cutlery. They showed no emotion on seeing a watch, but the sight of a common screw, when they saw it enter two pieces of wood, and hold them together, produced screams of joyous appreciative laughter. They were ready to part with anything they had for a brass screw. They understood at once the use of a file, a hammer, a saw, but the mechanism of a large clasp knife puzzled them. Their wonder and astonishment on seeing a large white drinking-glass, made it obvious that the thing was quite new to them; and they were not quite sure whether it was a product of nature or of art. They evinced a marked repugnance to a painted landscape, but the coloured photograph of a fair woman rivetted their silent attention. When shown a looking-glass, some were at first scared for a few seconds, but presently broke out into hearty laughter when they saw their reflected image laugh, but making no sound. Others were struck with fear, as if they had seen a ghost and closed their eyes. When shown its reflecting power by flashing it in the face of the sun, they were much pleased, but their attention was chiefly occupied by the idea of how they could manage to get hold of some of these wonderful things and keep them. One or two of the more daring at once took possession of some of the articles they admired, but readily gave them up when required to do so. It was quite impossible for me to resist the impression that it was as easy to train these people to the useful and the good, as it is by a happy knack to blow a smouldering wick into a flame. That is the permanent feeling which I retain regarding them.

As a rule the women were much more communicative than the men, but the men were willing and docile; they soon learnt, when on board ship, how to wash decks, and this work was always done to songs of their own making; they submitted, without murmur, to occupy different parts of the ship during meal times and at night. At first, when breakfast and dinner were prepared, the women waited on the men, but in a few days afterwards, to their infinite amazement, I made the women sit down, and the men got no food until they had first carried from the galley the food intended for the other sex. For some time the women did not like it. The men grew more and more sulky over it, and it was not until I took part in waiting on the ladies myself that the new arrangement was willingly carried out. They all went regularly to bed at a fixed hour, rose with the sun,

cooked their own food, washed their own vessels, chopped firewood, and learnt to wash, sew, and mend clothes. The women took readily to clothing, but much preferred to make ribbons of calico petticoats to adorn their heads than to cover their bodies. They were nice and dainty in their food, and would rather die than take physic. Their keenness of sense was remarkable: any uncommon odour was repulsive to them, while carbolic acid drove them wild. Their eyesight was remarkable: they could, and frequently did, discover land which we were unable to make out with good glasses; they could pick out a small boat six or seven miles off at sea in bad weather, when we were unable to do so with binoculars or telescopes. But not only were they uncommonly good at long sight, they were equally so in making very small beads out of shells, and doing minute carving and engraving on spears and clubs, on canoes, combs, earrings, necklaces, bracelets, and on musical instruments; not to mention the fine tattooings with which many women's faces were disfigured. The Indians of the South American deserts can see great distances, and distinguish the colours of mules and horses long before any European eyes can; but they do not surpass or equal these New Irelanders in their power of sight.

But I attach more importance to the ready manner in which they took to habits of cleanliness, order, and regularity. They were easily taught many simple things, but the teaching had to be incessant, and the teacher always present to ensure a good result; when left to themselves they speedily relapsed into empty idleness. I assume then that these people are the offspring of remote but superior races, that they retain some inherited powers, which have become weak by lack of use, and that these moral and intellectual powers can be easily restored.

New Ireland is situated about 300 miles south of the Equator, and separated by a strait, 50 miles wide, from the south-east coast of New Guinea. The island is some 250 miles long, and 30 or more miles broad. Viewed from seaward it is seen to be densely wooded and well watered. Cocoa and areca nut palms stand out against the sky along the summits, and grow in immense numbers all along the shore. Vast patches of the hill-sides are under cultivation, and these are fenced with wickerwork. Yams and taro are the roots mainly cultivated. The food of the natives is chiefly vegetable, and consists of cocoanuts, yams, taro, arrowroot, nutmegs, haricot beans, bread fruit, the sweet potato, bananas, and other fruits. Sometimes they add fish, and now and then kill a pig; there is abundance of domestic poultry; we also found plenty of nuts, chili peppers, and the delicious mangostine. The only wild animal I found was a small opossum.

The climate is humid, the vegetation a dark green, and every tree appeared to be overrun with parasitic plants. Although food appeared to be abundant, the natives were poor in flesh, lanky, short in stature, slight in weight. Their usual colour is a dark brown, but many are much lighter. No doubt there is a considerable mixture of blood among them. The hair of the head is crisp and glossy, and as dense and populated as their own hills. Many of the black men had abundance of hair on their bodies; the lighter-coloured had little or none.

The tattooing and cuttings on the flesh were entirely confined to women and the head men. The tattooing is abundant at the corners of the eyes and mouth, and is darkened by rubbing in the powdered oxide of manganese, which they call *labán*.

The men go absolutely naked, but the women wear "aprons" of grass in front and behind, suspended from cinctures, made of beads strung on threads drawn from the leaves of the aloe. The women also make an excellent bonnet from palm leaves, and also a cloak which covers the back and head, used only in the rainy season; they evinced great fear of getting wet in the rain.

I noticed no mutilations among them, no cutting off of eyebrows, or knocking out of teeth. The septum of the nose is perforated to receive rings of beads, and other ornaments, the only breach of good taste in adorning themselves to be found among them. They stick flowers and gaudy feathers in their hair, and wear garters on their naked legs under the knee, well knitted out of fibre. Many bleach their hair with coral lime, paint their bodies with red and yellow earths, and get up their faces like the clown and pantaloon in a pantomime.

Their huts are singularly well thatched, and are raised from the ground on heavy logs about 2 feet high; there are no doors, windows, or chimneys. In pottery they make well-shaped water-bottles.

They construct admirable canoes, but use no sails. The canoes are beautifully carved—are made of well-cut battens, $\frac{1}{2}$ inch thick, 20 feet long, and 5 inches wide, and pitched with some black resinous stuff which they call *antcet*. Their paddles are symmetrical, and oftentimes carved with taste and skill. The figure-head of the canoe is admirably sculptured. Twenty paddles in a canoe can raise the speed through the water to a good ten knots an hour, and I have seen canoes keep up this pace for at least an hour and half without stopping.

Their weapons are clubs and spears. They have no bows and arrows. The clubs are of all shapes, of heavy, well-polished, dark woods, and excellently carved. The prevailing form was that of the cricket bat.

The spears are ornamented with beautiful engraving, are of great length, well pointed, and horribly barbed with birds' bones. Some of these I found clotted with putrid blood, but whether it was used as a poison, or was the blood of some victim, I do not know. A goodly number of men bore deep scars on the forehead and thighs, the result of recent fighting among themselves. Some of the women bore cruel marks of ill-treatment.

They speak a language which is at once musical and familiar, in which I found a fair sprinkling of Spanish and Arabic words and names. *Palacios, Papa, Gomes, Baul, Pasián, Fandango, Cabinay, Lakavatt Malawáh, Teh, Solyman, Tzigléh, Tzogoll, Fakowmeleh, Yelly-yelhi, Liliguy, Fampow, and Festelli* were among some of the names which I took down from islanders' lips.

The following words, picked out of some four hundred which I collected, may be of interest:—

The head is	..	..	<i>pakaloon.</i>
The hair of the head	..	..	<i>olalán.</i>
Forehead	..	..	<i>tatan or tatangue.</i>
Eye-brows	..	..	<i>pilpirrimatan.</i>
The eyes	..	..	<i>malan or malangue.</i>
Eye-lashes	..	..	<i>ololonmalangue.</i>
Cheek	..	..	<i>tataan.</i>
The ear	..	..	<i>bambaloon.</i>
Nose	..	..	<i>gogorong.</i>
Mouth	..	..	<i>amboolin.</i>
The lips	..	..	<i>amboolingue.</i>
Teeth	..	..	<i>nersán.</i>
Chin	..	..	<i>comesán.</i>
Neck	..	..	<i>auconconong.</i>
Shoulder	..	..	<i>pasuán.</i>
Arm	..	..	<i>nemann.</i>
Hand	..	..	<i>pocklaneman.</i>
Fingers	..	..	<i>bidbidaneman.</i>
Woman's breast	..	..	<i>susung.</i>
Stomach	..	..	<i>ambunang.</i>
Navel	..	..	<i>ambuling.</i>
Thigh	..	..	<i>panwack.</i>
The buttocks	..	..	<i>putputunge.</i>
The back	..	..	<i>ampocktan.</i>
Leg	..	..	<i>parwangee.</i>
Calf of leg	..	..	<i>dannekeken.</i>
Knee	..	..	<i>ampiscontibee.</i>
Foot	..	..	<i>potankeken.</i>
The apron	..	..	<i>soofunfun.</i>
Virile hair	..	..	<i>ololocconmock.</i>

They count up to ten, and their numerals are—

1	<i>teká.</i>	6	<i>kabon.</i>
2	<i>oo.</i>	7	<i>kafus.</i>
3	<i>tool.</i>	8	<i>kavál.</i>
4	<i>fet.</i>	9	<i>valkasú.</i>
5	<i>kasan.</i>	10	<i>sukasanfool.</i>

The first European visitors to New Ireland, and its adjacent islands, of whom we have authentic records, were Spaniards. The first expedition, headed by Mendaña de Meyra, sailed from the coast of Peru in 1567, and for some thirteen years the Spaniards with varying success continued in these waters; the only remains of their visits being the names of many islands (such as Guadalcanal, Sesga, Solomon, St. Antonia, Santa Lucia, Espirito Santo, San José, Santa Isabel, Los Reyes, Santa Cruz, and others), a few isolated words, and a marked Spanish likeness in some of the lighter-skinned natives.

Since the Spaniards, the islands have also been visited by the English in 1767, when Captain Philip discovered the Admiralty group some 150 miles further east; by the French under Deutrecasteaux in 1791, when out in search of La Perouse; and by the Americans under Captain Morrell in 1843.

Since then, and more particularly during the past twenty years, the communications with Europeans have been numerous, with fatal results to the natives. The first attraction which the islands offered was the exuberant abundance of cocoa-nuts. It may be safely said that in New Ireland and its neighbouring islands, some twenty in number, the Germans found 200,000 cocoa-nut trees in full bearing.

The annual product of each tree is worth one dollar, and it may also be safely said that the annual cost of collecting \$200,000 to the Germans did not exceed £15. The barter for these cocoa-nuts consists of glass beads, poor cutlery, tobacco and pipes, cheap rum and other fire waters, with what consequences to the natives it is easy to imagine.

The Americans have kept themselves to whaling, the French to pearl-fishing and digging for *bêche-de-mer*, and the English of the neighbouring colonies have "recruited" the men and women for their industrial army engaged in producing sugar for the most part.

This "recruiting" has been easy on account of the peculiar power which the king or head man of an island has over the lives of the natives; he can command men and women to go wherever he pleases, and they obey without a murmur.

I suppose it may be safely inferred that the ornamenting of spears and clubs, and other missiles of war, indicates the existence

among the natives of what is known as the religion of blood revenge. One thing is certain, that their spears, arrows, and clubs are beautifully ornamented, and as elaborately as any Eastern gun or sabre. I believe it is true that the making of weapons of war in the South Sea Islands is still carried on to a large extent, and shows no more sign of ceasing than is to be found among the powerful and polite nations of the world.

I commend to the notice of all who may be interested in these people, the masks, weapons, and other things which are to be found in the British Museum, which will not fail to impress all who study them that the people who made them possess a refinement which is capable of being much extended.

DISCUSSION.

The PRESIDENT, in introducing the paper, remarked that it dealt with one of a group of islands of whose inhabitants we knew little, but in whom recent schemes of colonization had excited interest. Mr. Duffield had had considerable opportunity, in the course of his inquiries into the Australian labour traffic, of watching the behaviour of the people whom he described. His paper would be doubly of value, both on its own account and as a means of eliciting information about the inhabitants of it and of the neighbouring islands, which not a few of those present at the meeting were eminently qualified to give.

Mr. COUTTS TROTTER, having been called upon to speak after the reading of the paper, said he would have liked to elicit something as to the relation of the population of the southern part of New Ireland. Mr. Powell, he understood, said they were evidently connected with the Solomon Islanders; Mr. Weisse, of the "Hyäne," in a letter to Professor Bastian, said they have a markedly Polynesian character. But the features which in the Solomon Islanders were grafted on a Melanesian stock seemed to point to other than a Polynesian source: rather, one would say, to a Malay. Mr. Trotter was surprised to hear of the numbers of very fair people met with by Mr. Duffield, for other observers had reported a very marked repugnance to, as well as fear of, a white-skin—so much so that it is the custom to hold new-born infants over a smoky fire in order that they may grow up black. Mr. Trotter was much struck by Mr. Duffield's emphatic belief in the capacity of the race for improvement, which at all events testified to the humane and enlightened character of his dealings with them.

Mr. WILFRED POWELL and Mr. GUPPY also joined in the discussion.

Mr. DUFFIELD, in reply, expressed the great pleasure he had felt for the deep interest taken in the subject which he had the honour to introduce to the notice of the Anthropological Institute. Much remained to be done in spreading accurate knowledge abroad on

the native races of the South Sea Islands. He was quite sure that the outrages of which we had heard so much of late would be heard of no more. But the Institute must be unremitting, alike in its humane as in its scientific labours, if these and other native races are to have their share in the beneficence of the progress which so signally marks our own time.

The following paper was then read by the Author:—

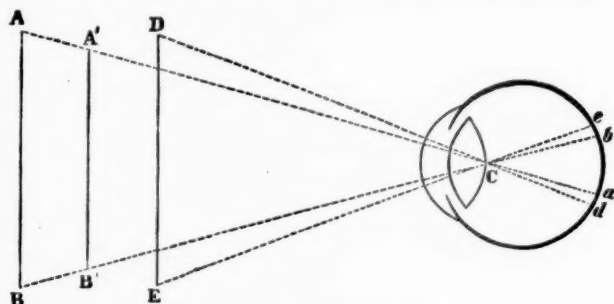
HINTS on VISION-TESTING.

By R. BRUDENELL CARTER, Esq., F.R.C.S.

THE circumstance that I have lately called attention to the effect of some of the conditions of civilisation upon the development of the eyeball, and upon the power of seeing, has called forth expressions of doubt with regard to the correctness of the popular belief that certain savage races are more keenly sighted than the generality of civilised men. As a matter of probability, I am disposed to think that this popular belief is well founded: first, because it rests on the testimony of writers who have been accustomed to observe with accuracy, and who have been little prone to give currency to mere marvels; secondly, because it is natural that the anatomical structure and functional excellence of the human retina, as of the retinae of the lower animals, should be favourably influenced by conditions which call for a high degree of sustained activity. There may, no doubt, be many savage races among whom these conditions do not exist; but they exist in a marked manner among others, and especially in countries in which the formation of the surface and the character of the atmosphere are favourable to distant vision, and in which the natives are accustomed to employ such vision for the purposes of hunting or of war. We may reasonably hope, however, if this Institute should determine that the question requires systematic investigation, shortly to see the facts placed beyond the reach of doubt; and my object in addressing you this evening is to offer a few suggestions with regard to the lines on which the investigation should be conducted, with regard to the points which it would be specially important to determine, and with regard to certain errors which it would be equally important to avoid.

It has long been customary to express acuteness of vision in terms of the visual angle. In the diagram (p. 122), if A B represents an object of vision, A C and B C are lines drawn from its

extremities to meet at a point within the eye, and may be taken to represent the axial rays of two pencils of light which proceed



from A and B respectively. The angle ACB is called the visual angle, and its magnitude is obviously dependent, partly upon the magnitude of the object, and partly upon its distance from the eye. The, smaller object, $A'B'$, being nearer to the eye than the object AB , subtends an angle of the same magnitude; while the object DE , which is equal to AB but nearer, subtends the larger angle DCE . The axial rays over-cross within the eye, and proceed to impinge upon the retina. If the diagram were a correct representation of the facts, the angle aCb , formed by the axial rays after their over-crossing, would be equal to the angle ACB , formed prior to their over-crossing, and therefore, if we knew the magnitude of the angle ACB , and the distance of the crossing point from the retina, we should know also the magnitude of the retinal image. Hence, within certain limits, the magnitude of the retinal image depends upon the magnitude of the visual angle, and this again upon the size and distance of the object; and the commonly received view is that the limit of visibility depends upon the absolute size of the individual elements of which the perceptive layer of the retina is composed. The most sensitive of these elements, the cones of the retina, have a diameter of about four-thousandths of a millimetre across the inner portion, and of about one-thousandth of a millimetre across the outer portion; and it has been assumed that a retinal image does not become an object of sense perception unless it is large enough to cover the surface of a single element. This condition is fulfilled, apparently, in a well-formed eye, by the image of an object which subtends a visual angle of one minute, or even a little less, an angle of fifty seconds being the smallest under which the distinctness of two points is recorded to have been seen. This high acuteness of vision has only been attained under very favourable conditions of illumination; and, for clinical purposes, it has been found necessary to adopt an arbitrary and much lower standard.

The test-types in common use are so proportioned that, at some stated distance, they subtend a visual angle of five minutes in height, and an angle of one minute across their limbs or parts; and persons who can read them easily and correctly under these conditions are said to possess normal vision. This very moderate standard is constantly exceeded.

Lord Rayleigh has lately introduced a new element into the question, by suggesting that the defining power of the eye, as an optical instrument, is limited by its aperture and by the wavelength of light. He has published a rough calculation on which he founds the conclusion that the limit of sight would be reached under a visual angle of "about" two minutes. He stated that this limit had been "approached" by civilised physicists, and hence inferred that there was little room for uncivilised men to surpass them. It would be rash for me to assert that Lord Rayleigh is wrong in his principle, but he is obviously wrong in his application; for the limit which he assigns to vision is, as I have already stated, one which civilised physicists have not merely approached, but very far exceeded. There is, therefore, at the very least, a serious error in his calculation; and I may add that there is no such variation of visual acuteness, in relation to changes in the diameter of the pupil, as his hypothesis would seem to require. Without denying that there is an optical limit to the defining power of the eye, I am yet disposed to believe that this limit has no bearing upon the question at issue, and that the practical limit of visibility depends, in healthy and well-formed eyes, entirely upon the anatomical formation and the functional sensibility of the retina.¹

The next point to which I must call attention is that the conditions shown in the diagram are not of universal occurrence, and that the actual relation between the magnitude of the retinal image and the magnitude of the visual angle is by no means of a simple character. The dioptric system of the eye is complicated, and one effect of its complexity is that the point of divergence of the axial rays within the eye is not identical with their point of meeting, but is posterior to it. Moreover, the distance between the meeting-point and the point of divergence differs in different circumstances. A large proportion of eyes are so constructed that the focal length of their refracting media is identical with the length of the antero-posterior axis.

¹ After this paper was written, the error in Lord Rayleigh's calculation was pointed out in a letter to "Nature," and was acknowledged by his lordship. The optical limit of vision would only be reached under a visual angle of 28.9 seconds; and hence, as the finest seeing hitherto accomplished by a "civilised physicist" has been under an angle of 50 seconds, this best recorded performance represents scarcely more than one-half of the acuteness which would be theoretically attainable.

Persons who have such eyes are said to be emmetropic, that is, their eyes are in correct measure or proportion, and hence they possess the largest attainable range of functional activity. Persons whose eyes are not in this correct proportion are said to be ametropic, or out of measure; and ametropia presents two chief varieties, hypermetropia, in which the focal length is greater than the length of the antero-posterior axis, and hypometropia, commonly called myopia, or short-sight, in which the focal length is less than the length of the antero-posterior axis. Generally speaking, it may be said that hypermetropia, or flat eye, is a state of arrested development or of degeneration, and that myopia is a state of malformation, often originally inherited in some degree, but always aggravated by use and often complicated by disease. Both forms of ametropia are liable to be further complicated by astigmatism, a state in which the ametropia differs in degree in different meridians. In every variety of ametropia the cardinal points of refraction are disturbed, and different relations are produced between the visual angle and the divergence of rays within the eye. A similar disturbance is produced by the adjustment of the eye for near vision; and, moreover, in the ametropic, unless the defect is corrected by optical means, the result of the divergence of the rays is to produce upon the retina only a dispersion circle, or smudge, instead of a defined image. Before we can be sure, when comparing visual angle with visual angle, that we are also comparing retinal images of similar magnitude and clearness, we must completely correct ametropia by lenses, and must place our test objects at such a distance from the eye as to exclude adjustment for near vision. The smallest distance at which this can be done is 20 feet, within which range the divergence of the rays proceeding from a point becomes appreciable; and hence all so-called vision-testing, which has been conducted by objects placed less than 20 feet from the subjects, and without the careful correction of ametropia, may be dismissed from consideration, on the ground that there is no common measure for any results which may have been obtained. The external conditions having been the same, the conditions within the eyes would be too various to furnish materials for the judgment. To compare the vision of an emmetrope with that of an uncorrected ametrope, especially after testing them at a distance which calls some ocular adjustment into play, is to compare things between which there is no possible common measure.

In testing the vision of uncivilised men, it would manifestly be impossible for travellers, generally speaking, to undertake the correction of ametropia, which must therefore be excluded, as

far as possible, by selecting as subjects those persons whose vision is of the average quality of the race. Test-types must be rejected, not only because the subjects would be unfamiliar with the names and aspects of the letters, but also because these are not scientifically accurate, some of them being more legible than others. Single dots or marks, or dots or marks separated from each other by large intervals, must be rejected, because the power to discern a single dot does not depend upon acuteness of vision, but upon sensitiveness to small variations of light. The true test of acuteness is the power to separate two objects which are seen by the same visual act, and the best objects for this purpose are Burchardt's Internationale Sehproben, which consist of black circles or dots, arranged in groups, in such a manner that each circle is separated from the contiguous ones by intervals equal to its own diameter. The groups are numbered, the number upon each indicating the distance, in metres, or parts of metres, at which each dot subtends a visual angle of $2'15''$, equal to $1'56''$ English. Nothing larger would be required than the group the members of which subtend this angle at 6 metres, roughly 20 feet; and the method of proceeding would be to place the subject at a greater distance than this from the dots, and to cause him to approach until he could count the components of each group. The distance at which this could be done should be measured and recorded; and the experiment should be repeated often enough to exclude guessing or accidental sources of error.

Suppose a traveller to have established, in this way, that the acuteness of central vision, in an uncivilised man, was no greater than that which is often found among ourselves, he would still be only on the threshold of the inquiry. There would yet be three possible conditions which might confer upon the uncivilised man a far greater degree of real acuteness than the testing would suggest. He might have greater sensitiveness to colour, greater sensitiveness to light, and acute vision over a larger retinal area. Each of these advantages would confer upon him a much increased power of readily perceiving small and distant objects, and of discovering their nature.

The percipient elements of the retina, of which I have already spoken, are of two kinds, rods and cones, of which the latter are the more highly developed and the more sensitive. In the human retina, as far as it has been examined, there is a small central area, the seat of the most acute vision, in which the elements are all cones. In a zone immediately surrounding this area, each cone is surrounded by a single circle of rods. In portions of the retina still more peripheral, each cone is surrounded by a threefold or fourfold circle of rods. In the

retinæ of birds, the cones are much more abundant in proportion to the rods; as abundant, in the most peripheral parts, as they are in man in the immediate vicinity of the centre. Not only so, but the cones are of more specialised construction than in man, and each contains a coloured globule, evidently an organ which ministers to a highly developed colour-sense. In bats, on the other hand, there are no cones at all, and the retina is furnished only with rods. It is probable that analogous variations of structure, the results of modes of use extending over many generations, may occur in different families of mankind.

In order to test acuteness of colour-vision, I would suggest that travellers should be furnished with cards on the principle of Burchardt's tests, on which groups of dots should be painted in colours of very slight intensity, and that the distances at which the dots composing these groups could be counted should be recorded. The selection of the colours for this purpose, and the determination of the degree of saturation, would be matters requiring careful and detailed consideration.

In order to determine degrees of sensitiveness to light, I have had an instrument constructed, though only in a rough manner, for exhibition this evening. It consists of a tube, fitted to the orbit at one end, so as to preclude the entrance of light, and closed at the other end by a plug, upon which may be fixed a card, marked with lines, dots, or other figures. At one side of the tube is a shutter to admit light, which is diffused by passing through ground glass. The shutter should be slowly opened until the objects become visible, and the area of the opening can then be read off by graduations at the side. The objects used should include colour dots as well as black ones.

With regard to the last point, the area of retinal sensitiveness, we have abundant material for comparison. In civilised man, as a rule, the sensitiveness of the retina diminishes with much regularity as we leave the centre. For a distance of from one-fourth to one-third of a degree from the centre, it retains the central acuteness. At a distance of half a degree it is reduced from about four-fifths to about two-thirds of this acuteness. Up to an angle of 40 or 45 degrees, the reduction in the acuteness is progressive, and is expressed by a fraction which has unity for its numerator, and for its denominator a number ranging from twice to $4\frac{1}{2}$ times the number of degrees from the centre. Thus, at 15 degrees from the centre, the acuteness would be less than that of the centre in the ratio of from 30 to 67 to 1; and in farther distances the decrease is still more rapid. On the horizontal meridian, in the outer part of the field, the diminution of acuteness is less than elsewhere; and it is comparatively large on this meridian between the second and

the twelfth degree, that is to say, between the centre of the retina and the entrance of the optic nerve, but these differences may be disregarded for practical purposes. Lateral vision is tested by instruments called perimeters, some of which are very complicated, but I have had a simple perimeter constructed for the purpose of the investigation which we are now discussing. If the instrument is held by the angle, and the piece of wood is pressed against the chin, one eye being closed, any selected object of vision may be placed in the slide, and may be carried laterally, while the open eye is kept fixed upon the central point. Either black dots or coloured dots, or both, should be used as objects; and I should be quite prepared to find that both would be discernible, by the eyes of some savage races, in lateral positions in which they would be quite lost to the eyes of civilised men.

YESIGHT OF SAVAGE *and* CIVILISED PEOPLE.

By CHARLES ROBERTS, Esq., F.R.C.S.

THE proposal to test the relative eyesight of savage and civilised races is by no means a new one to English anthropologists. In the small volume of "Notes and Queries on Anthropology" drawn up by a Committee of the British Association, consisting of such well-known members of this Institute as C. Darwin, E. B. Tylor, Col. Lane Fox (Pitt Rivers), Dr. Beddoe, our President, and many others, tests and instructions are given for this purpose. These tests are the set of dots employed by our army surgeons for testing the (minimum) eyesight of recruits, and consist of a series of dots $\frac{1}{4}$ inch square, grouped in a variety of ways to prevent guessing or imposition on the part of the person under examination. These army test dots were largely used by the Anthropometric Committee of the British Association which closed its operations in 1883, but as the results in some instances were not satisfactory they were given up in favour of Snellen's test types. The objections to the use of the army test dots were (a) that some of the dots being placed at unequal distances from each other they were distinguishable at varying distances; and (b) the great distance at which the dots are visible to persons with good eyesight (theoretically 57 feet) in a great measure prevented their use in towns where sufficiently long and well-lighted ranges were difficult to find. Since the Anthropometric Committee issued its final Report I have analysed the returns of eyesight sent in, and after eliminating the observations which

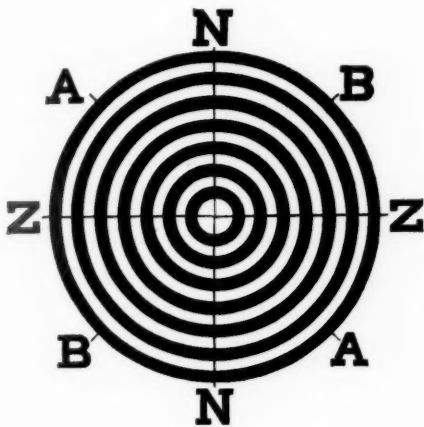
were known to have been taken under unfavourable conditions of illumination, the results appear to me to be quite trustworthy, as they conform when grouped in the usual manner to the well-known "law of error." The groups increase in a fairly uniform manner from four observations at and under 5 feet, up to 272 observations at 50-60 feet, and then diminish in a similar manner to four observations at 110 feet and upwards; the mean or largest group being, at 57.5 feet, identical with the theoretical distance at which the dots are visible to persons with good eyesight. The difference, moreover, between the eyesight of town folk and of country folk, as shown by these statistics, is barely 4 per cent. in favour of the latter, a difference which is probably to be accounted for by the better light in the country. These results would seem to show that the varying distances between the dots on the test card is not a vital objection to their use, as the result depends on the power of the eyes to separate the dots which are nearest together, and these are always separated by one diameter. It would be desirable, however, in altering these tests, or in devising new ones, to avoid this possible source of error and arrange the test objects, whatever form they may take, at equal distances from each other. [A diagram was here exhibited showing the effect of grouping the test dots at distances of one, two, three, four, and five diameters apart, and the increasing distances at which each set is visible.]¹

In arranging tests for eyesight sufficient attention has not been given to the interference with their use which astigmatism produces. This defect of sight is much more common than is generally supposed, being according to my experience rarely absent in adult persons, but has not received so much attention as other defects of sight because it does not in some of its forms materially interfere with the ordinary use of the eyes. In these cases there is a meridian of the eye which possesses the proper focal length lying between two portions which are imperfect. In the ordinary use of the eyes the meridian of good sight is made, by the rapid movements of the eyeball, to range over the object to which attention is directed and a sufficiently clear image of it is formed on the retina, but it is quite otherwise when the attention is fixed on a small object like a test dot or a test-type. In this case the test object becomes elongated in a direction at right angles to the meridian of good vision, and hence dots

¹ It must be borne in mind that these test dots are used in the British army as a *minimum* test, and any recruit who cannot distinguish them at a distance of 15 feet is rejected as unfit for military duties, as he would be unable to see a bull's-eye target 2 feet square at a distance of 600 yards. The instructions for carrying out this examination of recruits are unfortunately introduced in the "Notes and Queries," and they must be very puzzling to persons not accustomed to testing eyesight.

separated by only one diameter are seen together and assume the appearance of a continuous line before they disappear from sight by increasing distance. This common form of astigmatism is attributed to irregularities of the surface of the cornea, but there are other forms due to irregularities in the form of the lens which have received little attention from ophthalmologists, and which are often confounded with myopia, with which they have many features in common.

To eliminate the interference of corneal astigmatism with the use of small test objects, and as the direction of the meridian of good sight is not constant but varies in different persons, and possibly in different races, I have proposed the adoption of a series of concentric circles, which, as they embrace the whole field of vision, must be visible to astigmatic eyes in one direction, and in this direction therefore the lines may be counted. (See figure.) These circular diagrams are a most delicate test for all forms of astigmatism, apart from other forms of defective eyesight.



There are many reasons why we should hesitate to accept the statements often made relative to superiority of the eyesight of savages over civilised peoples till the sight of both has been submitted to some rigid test similar to those I have referred to. I have myself been much among savages (several tribes of North American Indians, Australians, and the Hill tribes of India) without noticing any remarkable manifestations of good eyesight apart from that which was due to a special knowledge of the objects observed. The travellers' tales on this subject are to be accounted for by faulty standards of comparison. Many—probably most—travellers are ignorant of the quality of their own eyesight, and

sailors, from whom many of the stories reach us, are a wonder-loving class, and not always the masters of their imaginations. The cases, moreover, which have been recorded are only those of persons who possess remarkable eyesight, and not the average of a large number of the same race living under similar conditions of life, and we do not know the best eyesight among civilised people with which to compare these cases. Eyesight equal to a visual angle of one minute has been accepted as the average of civilised persons, but this necessarily represents only half the acuteness of vision which some persons possess. Inspector-General Lawson, recording his own experiments in the Report of the Anthropometric Committee for 1881, tells us that he could at one time distinguish a flagstaff at Aldershot, the smaller diameter of which was 6 inches, at a distance of three miles, under favourable conditions of the atmosphere, the visual angle subtended being only 6·7 seconds, or a ninth part of the commonly received visual angle of one minute; and he further states that it could be seen by other persons under similar conditions. Among the observations collected by means of the army test dots already referred to, four men are returned as seeing them at 110 feet and upwards, that is to say, at about double the average distance. It is obvious, therefore, that if the test is to be one of who can see objects at the greatest distance, we must begin by ascertaining the best eyesight to be found among ourselves. This would be, however, a very difficult and unscientific method, and it is only by obtaining the averages of a large number of observations among savages and among civilised races, and comparing them together, that any useful results can be obtained.

DISCUSSION.

The PRESIDENT remarked, before the first paper was read, that the question of the relative keenness of sight of savage and civilised races had lately been brought prominently into notice by Mr. Brudenell Carter. It concerned a matter of fact, and was one which this Institute might legitimately undertake to get solved. The question was not as to the greater quickness of observation and of perception of the savage, because on that point all were agreed; but whether his eye, as an optical instrument, was superior to that of a civilised man. To solve this question, satisfactory tests had to be thought out equally suitable for use in savage and civilised countries, and if this could be done there was little doubt that this Institute was capable of inducing many travellers to apply them.

After the reading of the papers, the PRESIDENT expressed his satisfaction at finding that there was a concurrence of opinion on one essential point, namely, on the superior merits (under clearly explained conditions) of test dots or circles. He himself thought

that for the purpose of travellers the number of those dots should be limited to one or two. He exhibited a thin octagon zinc plate, 5 inches in width, with holes in it to which paper test circles, of whatever construction might be adopted, could be attached by threads. The plate would be propped on one or other of its eight sides, giving that number of varying test positions.

ANTHROPOLOGICAL MISCELLANEA.

ETHNOLOGICAL NOTES on the ARABS of ARABIA PETRÆA and WÂDY ARABAH.

By E. GORDON HULL, M.D., B.A.

THE principal tribe inhabiting the Sinaitic peninsula, south of the Hadj road from Suez to Akabah, is the Towara, and amongst them I spent some weeks in the winter, 1883-4, while assisting my father, Professor Hull, to make a geological survey of the country for the Palestine Exploration Fund; the other tribe with which we came in contact being the Alawin, who live in a territory bounded on the north by Wâdy Mûsa and Petra, on the west by Wâdy Arabah and Gulf of Akabah, and which extends somewhat indefinitely east and south. Their Chief, Muhammed Ebn Jad, is subsidized to protect the Egyptian Hadj.

We also encountered the clan which inhabits the Wâdy Mûsa, who appear to be of quite a different race. Their skin is very much fairer than that of the Arabs, they are considerably taller, and most of them have aquiline noses—in fact they look rather like Jews. The Arabs look down on them, because they cultivate the land, calling them "Fellaheen," and it is rather a problem as to where they came from. With regard to the Towara, it may be said that they are a small race, but their limbs and bodies are well formed and proportioned, and they are capable of enduring great fatigue on a diet consisting principally of boiled rice and butter, with unleavened bread, coffee, dates, and water.

I measured twenty-six adult males, picked men of the tribe; taking three measurements, that is, height, chest round nipple, and length of right arm from acromion to tip of middle finger. The average height was 5 feet $4\frac{1}{2}$ inches; average chest-measurement, 31 inches; average length of right arm, 27.6 inches. The maximum chest-measurement in a man of 5 feet 11 inches was only $34\frac{1}{4}$ inches, and the minimum in one of 5 feet was 30 inches. Yet with such insignificant chests they were splendid pedestrians and mountaineers, and did their day's march without a murmur. Certainly, they were all in very good condition, for I do not suppose there was an ounce of fat among the whole tribe.

The following are the detailed measurements. As they had an objection to being quite stripped, I put the tape round their chests over their thin calico shirt, so that the measurements are slightly in excess, .25 to .5 of an inch.

The chest-measurements were taken at the level of the nipples, with the arms down by the side, at the end of expiration.

No.	Age.	Height.	Chest-Measurement.	Length of Right Arm.	Remarks.
	years.	ft. and ins.	inches.		
1	28	5·11	32·5	30	All adult males.
2	25	5·1 $\frac{1}{2}$	31·5	26·25	Chest-measurement
3	25	5·5 $\frac{1}{2}$	31·5	27·5	round nipples.
4	25	5·7 $\frac{1}{2}$	32·25	28	Right arm from tip
5	50	5·5	31	27·75	of acromion to tip of
6	50	5·1 $\frac{1}{2}$	31	26	middle finger.
7	26	5·2	30	26·5	Height in feet and
8	30	5·2 $\frac{1}{2}$	30·5	25·5	inches, other measure-
9	23	5·5 $\frac{1}{2}$	33	26·75	ments in inches.
10	26	5·2	30·5	26	
11	26	5·6 $\frac{1}{2}$	31	27·5	
12	33	5·4	33	27·75	
13	37	5·7	32	29·75	
14	42	5·7	31·5	28·25	
*15	40	5·3 $\frac{1}{2}$	32·5	26·	*No. 15 a <i>Sheik</i> .
16	33	5·4 $\frac{1}{2}$	30	27·5	
17	21	5·2 $\frac{1}{2}$	33·5	20·5	
18	36	5·10	34·25	29·5	
19	30	5·8 $\frac{1}{2}$	33	28·25	
20	38	5·3	33	26·5	
21	24	5·2 $\frac{1}{2}$	31·5	27·5	
22	45	5·4 $\frac{1}{2}$	30·5	26	
23	35	5·5 $\frac{1}{2}$	33	28	
24	35	5·3	31·5	27·25	
25	25	5·3 $\frac{1}{2}$	33	26·75	
26	30	5·4	32	28·5	

With some difficulty, and aided by the omnipotent backsheesh, I procured a skull from one of the native graveyards, which I sent to Dr. Alex. Macalister, Professor of Anatomy at Cambridge, who kindly gave me the measurements, which are as follows. He says:—

"It is the skull of an old female.

Length ..	..	176 mm.	} dolichocephalic index	·682
Breadth ..	..	120 "		
Height ..	..	126 "	} height index	.. ·716
Nasal height ..	..	48 "		
" width ..	..	22 "	} nasal "	.. ·458
Orbital height ..	..	33 "		
" width ..	..	37 "	} orbital "	.. 892
Basi-alveolar length	..	84 "		
" -nasal	..	95 "	} alveolar "	.. ·884

Capacity 1,120 cubic centimetres."

Dr. Macalister adds: "It is interesting that a somewhat similar skull, 181 mm. long, 119 mm. broad, 121 mm. high, and 1,100 cc. in capacity, was dug up in an alluvial bed at Sinai, and is now in the Hunterian Museum, No. 675."

The most startling point in these data is the extremely small

chest-measurement of this tribe of Arabs, which is so low as to be almost pathological. One modifying circumstance, however, is to be found in their extreme leanness, amounting to semi-starvation, and possibly their lung-space may be more extensive from above downwards than with us.

I will pass over the Alawin tribe in a few sentences, as I regret to say I did not measure them so extensively as I did the Towara. I measured some with regard to height alone, and the average I got was 5 feet 2 inches, but possibly this is too low, and 5 feet 3 inches would be safer.

Their muscles, especially of the upper extremities, were very poorly developed, while they nearly all, except the sheik, exhibited marks of inferior intelligence; about five or six out of our twenty men were decidedly half-witted, and all of them had the habit, common among such people, of repeating over and over again everything that is said to them, or that they say to one another. They appeared half-starved, and used to chew continuously the dried beans provided for the camels. They have splendid teeth, very firmly fixed in the jaw, and their sight is remarkably keen. They nearly all turn in their toes when walking.

I should remark that these tribes with whom we came in contact seem to be below the average Arab, as far as physique is concerned. Sergeant Armstrong, who was with us, and has worked for many years in Palestine and been among the tribes on the other side Jordan, says that *they* are a much finer race of men, and Mr. Merrill, the American Consul at Jerusalem, who explored the East of Jordan for the American Society, corroborates his opinion. Possibly the fact that the Towara are a small tribe, and are not allowed to marry out of it, may partially account for their deterioration.

Owing, no doubt, to their habits, the Arabs seem to be most subject to the diseases due to exposure; but as far as I could judge, these diseases have a tendency to the chronic or subacute form, rather than the acute. Two I particularly noticed as almost universal, that is, chronic bronchitis, of a dry kind, and without emphysema; and chronic articular rheumatism.

The first cannot fail to force itself on every traveller's attention, as it gives rise to a peculiarly irritating paroxysmal cough, rather canine in character, which, as the Arabs sat round our tents at night, often disturbed our slumbers. The second, that is, rheumatism, I noticed when taking the measurements of a series of the men; nearly all their shoulder-joints creaked and groaned as they raised them; and this will account for the curious inability of the Arabs to move about or do any work in the morning before they are "thawed," and rendered supple either by fire or by sun. It seems, at such a time, as if all their joints were temporarily ankylosed, so stiff and unpliant are they.

In certain districts, notably Akabah, they suffer from ague, but this disease is not common among the Arabs proper. The late Professor Palmer states that "they are sometimes visited by an

epidemic, not cholera, probably the plague, which they call 'the yellow pest.' It comes with the hot winds, and strikes them down suddenly in the midst of their occupation, but it is said never to attack the country of our Lord Moses, where grow the shiah and the myrrh, that is, the elevated granite-region about Mount Sinai."

They use a few of the native plants for medicinal purposes, but only a few, in comparison with the rather large supply of plants with pretty decided properties. For instance, they do not know the value of the castor oil plant, which grows freely in the Ghor es Safieh.

However, several species of wild melon, of the family *Bryonia*, allied to the *Elaterium* (which also grows in these parts), are in common use as purgatives; the native method of using them is ingenious. A fruit is split into halves, the seeds scooped out, and the two cavities filled with milk; after allowing it to stand for some time, the liquid, which has absorbed some of the active principle of the plant, is drunk off. A milder remedy is camel's milk, which appears, under some circumstances, to be purgative to the Arabs.

The order *Compositæ* furnishes several medicinal herbs of which the Arabs make use. The *Santolina fragrantissima*, a graceful plant of a sage-green colour, bitter taste, and strong fragrant smell, furnishes them, in the form of an infusion, with a carminative, good for colic and all painful affections of the abdomen. In the bazaars of Cairo the fragrant dried heads are sold for the same purposes as camomile. I was told that there are no snakes in the districts where the plant grows: and the natives believe that the smell of the plant is sufficient to drive reptiles from a house, and it is used for this purpose in Cairo and other towns.

Another plant of the same order is an *Artemisia*, or wormwood with a very strong aromatic odour and bitter taste. The fellaheen use it to put in their bedding to drive away vermin.

A very striking plant, which often hangs in graceful dark green festoons from the granite walls of the gorges of Arabia Petræa, is the caper plant (*Capparis spinosa*). The natives are very fond of the fruit, which has a warm aromatic taste, and they stroke the region of the epigastrium appreciatively after eating one or two. The cortex of the root is said to be aperient and diuretic. Another fairly common plant is a *Hyoscyamus*, called by the natives sekharan, with fleshy leaves and purple flowers. The dried leaves are used by the natives to smoke, and produce a kind of intoxication or delirium; and an infusion of the fresh leaves possesses strong narcotic properties. It is nearly allied to the mandragora, which becomes common on the limestone downs in the south of Judæa. The Arabs are extraordinarily susceptible to narcotics. Our tobacco they could not smoke at all; a few whiffs make them giddy, and give them a headache; even a "Richmond Gem" cigarette is too much for them. Only two mineral substances appear to be regarded by the Bedawin as medicinal. One of them is sulphur, the other is a kind of common red coral, found on the

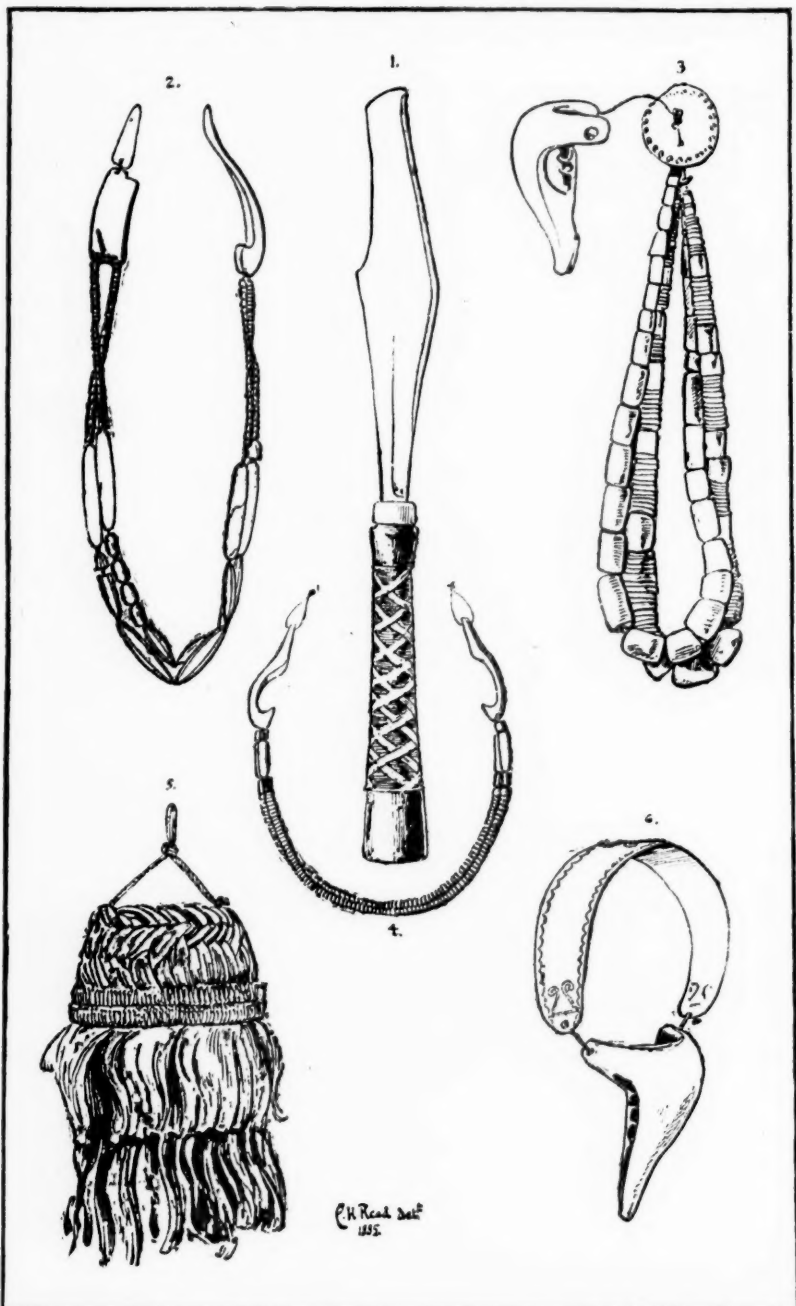
shores of the Red Sea and Mediterranean, and sold in the bazaar at Gaza. As far as I could gather, they only use this as a charm.

My remark about the keen sight of the Wâdy Arabah Arabs is not founded on any actual measurements; we thought that their discrimination of distant objects was superior to our own. On the other hand we considered ourselves superior to the Towara or Sinaitic Arabs, but so many of them had suffered from ophthalmia that they were hardly normal specimens. And, of course, with regard to the Alawin the objects were not unfamiliar to *them*.

ANTHROPOLOGICAL MEETINGS DURING THE AUTUMN.

THE fifty-fifth meeting of the British Association for the Advancement of Science will be held at Aberdeen under the Presidency of the Right Hon. Sir Lyon Playfair, K.C.B., F.R.S., commencing on Wednesday, September 9th. The Anthropological Section will be presided over by Mr. Francis Galton, F.R.S., the President of the Anthropological Institute.

The fourteenth meeting of the French Association for the Advancement of Science will be held at Grenoble, from the 12th to the 20th of August. The Anthropological Section will be presided over by M. Philippe Salmon. One of the most interesting subjects to be discussed at this meeting relates to the reputed Miocene anthropoid of Thenay—a subject which attracted much attention at the meeting held last autumn at Blois. M. d'Ault Dumesnil will describe the geological characters of the sections which were specially opened last September, in order to determine the precise age of the flint-bearing beds, and M. Daleau will exhibit and describe the flints obtained from these excavations; while a Committee appointed to inquire into the curious crackled surface of the Thenay flints will present its report. The subject of Tertiary Man will also be discussed by Prof. G. de Mortillet. M. E. Chantre will describe the prehistoric relics of Dauphiné, the district in which the meeting is to be held; and M. A. Villot will read a dissertation on the Antiquity of Man in the Alps of Dauphiné.



OBJECTS FROM THE AKKAS, NORTHERN ASSAM (about $\frac{1}{2}$ linear)